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VOLUME XXXIII.

The Physician and Surgeon

A PROFESSIONAL MEDICAL JOURNAL.

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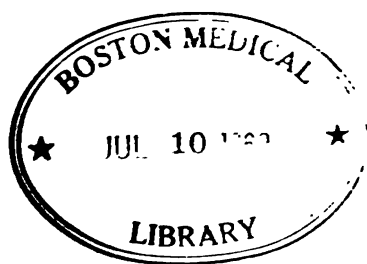
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ORIGINAL ARTICLES.

MEMOIRS.

PROGRESS IN THE THEORY AND PRACTICE OF LESIONS IN THE ALIMENTARY TRACT.

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THE most marked advance in our knowledge of pathologic conditions of the esophagus and of their treatment is that made by Plummer (*Surgery, Gynecology and Obstetrics*, Volume X, Number V, page 519) in his elaboration of the nearly forgotten technique devised by Mixer and Dunham regarding the value of a silk thread as a guide in instrumental interference. He shows the extreme simplicity of its use and demonstrates its safety and usefulness in both diagnosis and treatment, based on a series of three hundred lesions.

Cardiospasm has begun to be recognized with much greater frequency than heretofore, chiefly due to the paper read by the same author at the American Medical Association meeting in Saint Louis, 1910, at which time many radiographs were demonstrated showing the diagnostic characteristics of the lesion and giving the pathognomonic clinical picture, which is divided into three stages, first, that of the catching of the larger pieces of food at the cardia, but which pass through eventually from the peristalsis alone; second, the stage where the food remains proximal to the obstruction for an indefinite length of time, but may be forced onward by the use of intrathoracic pressure; and third, the stage in which solids will not pass, and the consequent inception of regurgitation.

His treatment, which has been successful without exception, is the use of a hydrostatic dilator, exerting a divulsive pressure against the cardia of about fifteen pounds; usually one treatment, but occasionally two, is all

that is necessary to effect a complete cure. The silk guide is almost indispensable in this procedure. Myers (*Journal of the American Medical Association*, Volume LV, Number XVIII, page 1554) has also had considerable experience with this apparatus, and confirms Plummer's statements.

Ulcer of the stomach and duodenum may be considered jointly. The most thorough exposition of the present day conception of the latter condition is that given by Moynihan in his recent book on "Duodenal Ulcer," and the consideration of ulcer of the stomach by Graham, based on the clinical diagnoses made in several hundred operated cases of the Mayo Brothers, points out many errors which have been made heretofore. We note that duodenal ulcer is far more frequent than we had supposed. Five years ago its occurrence seemed a rarity; now, many men meet with at least a case a week. Its occurrence is much more frequent in men, and its symptomatology quite pathognomonic in most cases. The old idea of the majority of ulcers of the stomach being found in the female has been exploded, and we find that not more than thirty per cent of the cases occur in women.

The ingestion of food does not cause pain in uncomplicated ulcer of the stomach, at least in its most frequent situation, but on the other hand relieves it. This is backed up by thoroughly scientific experiments. Indeed, the older textbooks seem directly at odds with the present day teachings from the living pathology of the operating table.

The relationship between ulcer and cancer of the stomach has received much consideration. To be noted especially are the observations of Wilson and MacCarty (*American Journal of the Medical Sciences*, December, 1909), in which they state that in a series of one hundred and forty-nine cases of cancer, one hundred and nine had certainly developed upon a preceding ulcer, and later Wilson and Willis (*Journal of the American Medical Association*, Volume LV, Number II) were able to demonstrate that sixty-seven per cent of cancers of the stomach had developed on ulcer. Moynihan places the incidence at seventy-two per cent, and Scaples at ninety per cent.

The treatment of ulcer divides itself into camps of Von Leube and that of Lenhartz, with various modifications by many men, notably Minowski, Senator, Zweig, Mayerle, Lüdin, Müller, Gerhardt, Mortiz, Lambert, Rosenfeld, Sternberg, Linossier, Rochester, et cetera, the relative merits of which cannot be considered here.

As accessory measures are the employment of almond milk or olive oil, Rutimeyer has reported striking results from its employment in one hundred cubic-centimeter doses every morning in one hundred cases (clinical), while Borhjaerg enhances its effect by suspending in it sixteen grams of bismuth. The carbonate of the latter being quite as efficacious as the subnitrate, according to Meyerle.

The results of the employment of horse serum by Hort in England, and Katzenstein and Fuld in Germany, are as yet far from conclusive, and the expense is prohibitive.

The styptics and vasoconstrictors have been finally discarded in the

treatment of gastric hemorrhage, and Kaufmann (*American Journal of the Medical Sciences*, June, 1910) shows conclusively that active or better continued bleeding is not a contraindication for the use of the stomach tube, but that in such cases it may be used many times with benefit.

Weinstein (*Journal of the American Medical Association*, Volume LV, Number XIII, page 1085) has brought forward a new test in the diagnosis of cancer of the stomach by the use of tryptophan, which has proved simpler and better than that formerly used by Newbauer and Fischer (*Deutsche Archiv of Klinikal Medicin*, 1909, XCVIII, page 499) in which glycyltryptophan was employed. Lyle and Kober *New York Medical Journal*, June 4, 1910, page 1151) report very favorably on the new reaction. Certainly it seems to bear further investigation.

Solomon's test has been discarded, further experimentation not having borne out the earlier statements. The skin reaction as evidence of hemolysis induced by the subcutaneous injection of normal red cells into a cancerous subject, devised by Elsberg, Neuhof and Geist (*Medical Record*, October 15, Volume LXXVIII, Number XVI, page 679) has been found positive in eighty-nine and nine-tenths per cent of cases which were amply controlled. It seems to be of diagnostic assistance in doubtful cases.

A great mass of literature has accumulated during the past year referable to the pancreas, chiefly the result of the more frequent recognition of its pathologic processes, due in part to exhaustive treatises on this subject by Robson, Codman, Mayo, Moynihan, Pilcher and others. The Camidge reaction as a pathognomonic evidence of pancreatic involvement has been demonstrated to be absolutely misleading, *if knowledge of the clinical history be eliminated*. There is no apparent clinical relationship between disease of the pancreas and any of the various types of end reaction. These various types of reaction do, however, indicate metabolic disturbances of varying character and intensity, which if continued may be indicative of a lesion of the pancreas (Pilcher, Willis and McGrath, *Surgery, Gynecology and Obstetrics*, Volume XI, August 1910, Number II, page 156).

Friedenwald and Ruhräh (*American Journal of the Medical Sciences*, Volume CXL, Number VI, page 93) have contributed to the advance of knowledge regarding dietetic treatment in diabetes in introducing the soy bean, an article of food capable of being prepared in a great variety of ways; it being efficacious in markedly reducing the amount of sugar present owing first to its containing practically no starch, and second, to its marked saccharifying properties. Mayo, Robson, and Louis S. Pilcher have written upon this subject dealing with its prophylaxis and treatment even after changes in the pancreas are established, considering operative interference indicated when any disturbance of gall-bladder function can be demonstrated; the indications being so absolute that we have in diseased conditions of this organ the etiologic factor of diabetes in many instances.

Regarding cholecystitis and the formation of gall-stones, Clark (*Boston Medical and Surgical Journal*, Volume CLXIII, Number XVIII, page 675) considers the metabolic, chemical, and histologic or mucous

membrane hypotheses at length. The article is well worth reading to those interested in the etiology of this condition; while Else (*Surgery, Gynecology and Obstetrics*, November, 1910) gives his views resulting from experiments as to the route traveled by the infecting agent in reaching the gall-bladder. For the treatment of inflammatory processes, especially when due to an infective agent, we find the best method to combat it to be the free use of urotropin, which is actively secreted by the mucosa of the bladder.

The continued prevalence of typhoid fever in certain districts has given opportunity for extended trial of dietetic measures, and the consensus of opinion is that a fluid diet is not only unnecessary, but injurious. Straus (*American Journal of the Medical Sciences*, Volume CXXXVII, Number V, page 31), Shattuck, Bushuyev and Fussell (*American Journal of the Medical Sciences*, Volume CXXXVIII, Number IV, page 526) and Strong (*American Journal of the Medical Sciences*, Volume V, Number X, October, 1910) are all insistent on a relatively general diet, the last mentioned even interdicting the use of milk at all, with the most gratifying results. Regarding the use of sera or prophylactic vaccines, generalizing statistics are still meager. Anders (*Journal of the American Medical Association*, Volume LV, Number XXIV, page 2023) concedes that the use of vaccines for the following purposes is of value: (1) As a means of prophylaxis; (2) when continued during convalescence, to prevent relapses; (3) to combat local infections, as bone suppurations; (4) for the removal of the typhoid bacilli in typhoid carriers, as demonstrated by Irwin and Houston (*Lancet*, London, January 30, 1909, page 311). The most indicative article is that by Russell (*New York State Journal of Medicine*, Volume X, Number XII, December, 1910, page 535), who reports vaccination of twelve thousand six hundred and forty-four troops, with the subsequent occurrence of five abortive types of typhoid with no complications or deaths; while in the remainder of the army as yet unvaccinated there occurred four hundred and eighteen cases with thirty-two deaths; making the rate per thousand among the vaccinated thirty-nine hundredths, while in the army at large it was nearly ten times as high.

Brem and Zeiler (*American Journal of the Medical Sciences*, Volume CXL, Number V, November, 1910, page 669) have revived and perfected the treatment of intestinal amebiasis, not only in the acute dysenteric forms, but have also been able to eradicate the ameba in the chronic conditions by the employment of ipecac in doses of sixty to eighty grains at bedtime, and decreasing the dose five grains daily until the limit of ten grains is reached. They report fourteen infections cured, eleven with dysentery and three without. This treatment certainly seems indicated before surgical intervention is advised.

Ruffer and Willmore (*British Medical Journal*, Number MMDCII, November 12, 1910, page 1519) recount their experiences with the use of polyvalent and monovalent antidysenteric serum against the bacillus dysenteria (bacillus of Tor, bacillus of Flexner and bacillus of Shiga) in one hundred and thirty-seven cases. They conclude that the mortality is very markedly reduced, and that this method of treatment is the best in

these cases, the various other procedures having proved unavailing in their hands. The serum has no action on amebic infections.

Mendel, Schmidt and Gompertz (*American Journal of the Medical Sciences*, October, 1909, and *Practitioner*, May, 1910) have introduced agar-agar for the treatment of constipation. They have used it extensively with good results. It appears to be innocuous, its efficacy depending solely upon its bulk, as it takes up water and is indigestible. For adults fifteen grammes (one-half ounce) are to be given morning and evening, mixed with the food or eaten as a cereal. Morse (*Journal of the American Medical Association*, Volume LV, Number XI, page 934) has also employed it, in children, in doses of two teaspoonfuls daily with good results, though at times its administration is difficult.

Von Aldor (*Therapeutic Monatshefte*, 1910, XXIV, 171) offers a valuable suggestion in the treatment of chronic catarrh of the large intestine associated with diarrhea by using an injection of from forty to eighty cubic centimeters of a ten-per-cent solution of gelatin at a temperature of from 113° to 125° Fahrenheit, and reports seven cases of complete cure. The value of gelatin in the dietary of patients suffering from this condition, as suggested by Senator and Horter, is an important adjunct to bear in mind in the treatment. Its employment in the diarrhea of infants, as recommended by Well, Lumiere and Pelm, may also be found practicable.

Diverticulitis has been receiving more and more attention since its relative frequency has begun to be appreciated, and deservedly so, as we have now ample proof that beside the occurrence in them of chronic inflammation and occasional perforation, there is a marked tendency to proliferation of segregated islands of epithelium which are a very frequent accompaniment of this condition, and the consequent formation of cancer. This relationship has become more evident since the report of Mayo, Giffin, and Wilson (*Surgery, Gynecology and Obstetrics*, 1907, Volume VIII), the etiologic factor having been identified repeatedly since then. Hartwell and Cecil (*American Journal of the Medical Sciences*, Volume CXL, Number II, August, 1910, Number CCCCLXI, pages 174-203) present a very exhaustive pathologic and clinical study on this subject, having obtained for examination eighteen cases among the various hospitals in New York. The most carefully studied series is that of Wilson (*Annals of Surgery*, February, 1911), and will well repay the reader.

The greatest advances in the diagnosis and treatment of pathologic processes in the alimentary tract have been those bringing before the profession the facts regarding the interrelation of the appendix, gall-bladder, pancreas, duodenum and stomach; as demonstrated through the agency of the surgeon, and the embryologic, histologic and pathologic data obtainable only from the operating table. Extended review of this question is impossible here, and I append a few references which will prove valuable.

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SALVARSAN; THE METHODS OF ADMINISTRATION AND SOME OF ITS THERAPEUTIC ACTIONS.*

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It is about one year since Professor Ehrlich directed our attention to the specific action of an arsenical salt upon a certain group of organisms that in laboratory experiments demonstrated that in animals infected with syphilis, the invading organism was killed in twenty-four hours by a dose of salvarsan which was many times smaller than the dose required to kill the animal. In the last half of this year this arsenical preparation gave such unusual promises that it has been most extensively tested experimentally in the largest clinical centers of the world. The enthusiasm aroused by the reports of these therapeutic tests has been most universal, and so unusual in its intensity that the daily press, and even the monthly magazines have not only discussed the importance of this medical achievement, but have openly discussed syphilis as a disease, contrary to previously existing prudish custom.

This unusual interest was warranted when we were led to anticipate in salvarsan a drug which promised to be a specific in this most general infection, scourge of centuries, when one dose, if appropriate, gave promise of eradicating the invading organisms from the system of the infected.

While the first reports upon its effect were most promising and startling, further observation of the patients to whom it has been administered gives rise to a marked diversity of opinion regarding its therapeutic value. The first articles which came from the selected observers who were to shape the destiny of this achievement, not only conveyed most glowing reports of clinical cures, but outlined also the dosage, repetition, reaction following its administration, and technique to be followed in its use. Some time has now elapsed since its first administration in a large number of cases in all stages of the disease, which allows some conclusions to be drawn upon the most important phase of its action, namely, per-

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centage of recurrences, after effects, and the percentage of clinical cures.

Antisera have not been found effective in combating the pathologic microorganisms of this disease, or products of their activity, owing largely to the slow development of immunizing substances in the blood of certain classes of chronic conditions in which they have been employed. The prime object of Ehrlich's research was some chemical substance that would destroy the organism absolutely, as quinine does the plasmodium in malaria.

Ehrlich has classified the substances he has employed in his experiments as "organotrope" and "parasitotrope," according as they effect the tissues of the body or the invading parasite alone. From a great many experiments made by different investigators, we learn that certain substances have a destructive action in vitro which possess absolutely no action when injected into the animal. Koch, for instance, demonstrated that certain salts of mercury injected into an animal infected with anthrax, in larger dose than required to kill the bacillus in a test-tube, would have no effect on the organism, but that the animal itself would die of mercurial poisoning. Some substances, then, possess organotropic activity in addition to their parasitotropic property. The phenol derivatives, which are markedly germicidal in high dilutions, are of practically no value from a therapeutic point of view. The opposite effect is seen in the action of an injection of atoxyl. Mesnil has demonstrated that dilution of this drug into the thousandths will destroy tripanosomes in man, while these parasitic microorganisms remain unaffected when subjected to a saturated solution of the drug in a test-tube. Ehrlich has shown that this peculiar action, as manifest in man, is due to a reduction of the atoxyl which takes place in the tissues. Ehrlich has also demonstrated that certain parasitotropic substances will attack the nucleus of the parasite and in this way destroy its reproductive power. Other substances have been found to destroy only part of the inhabiting specie of the organisms, their dead bodies present in the blood stream giving rise to antibodies, so that the therapeutic action is two-fold, namely, destruction of the infecting organism direct, and a neutralizing effect of antistances in the blood.

By far the most authoritative communications were made before the Congress of German Scientists and Physicians at Koenigsburg. At this Congress Ehrlich again strengthened his first announcements regarding the action of the remedy in animal experimentation, maintaining that the mass dose of the drug was the most efficacious method of administration, and if more than twenty-four hours expired before the organism was destroyed the dose was insufficient.

Ehrlich also maintains that it is not unusual for a substance possessing the power of destroying specific microorganisms in large numbers, when administered in large doses, to have the opposite effect, namely, that of accelerating their growth when given in minimal doses. This action is explained by the assumption that in small doses a resistance against, or a tolerance for the drug becomes established. This has been demonstrated time and time again in syphilis. The class of patients most difficult to treat in the later stages of syphilis is that which began with small doses

of mercury administered as a rule by the mouth. It is this class that shows the largest percentage of continued positive reactions to the Wassermann test.

Such observations as these have induced Ehrlich to inject into the body a massive dose of parasitotropic chemical substance, in order to free the body from all specific organisms for an indefinite time. This dose of salvarsan has been designated by Ehrlich "therapia magna sterilisans." The injection of a parasitotropic substance at the time of inoculation of fowls by a specific microorganism proved less successful in its bactericidal action than when the organism had been permitted to inhabit the body of the host for several days. Ehrlich thinks that this phenomenon may give rise to an important principle in treatment, namely, to wait until the invading organism has multiplied in large numbers, when the dose would kill them off by the million. From the first experiments with salvarsan, Ehrlich has regarded the drug as not unlike any arsenical salt, its use not wholly without danger; therefore insisting on preliminary tests to exclude contraindications to its use before the drug was administered. As a result of the recent improved methods of administration it is not now considered especially dangerous.

More than fifty thousand doses of the drug have been administered prior to this time, yet the size of the dose to be given and the mode of administration is still in a most unsettled state. The limits of dosage have been varied from the minimum dose of .3 grams to .8 grams. The doses early administered by different investigators in this country were, without doubt, insufficient, which assertion is based on the percentage of recurrences.

Method of Administration.—The drug has been introduced into the human system most frequently subcutaneously, intramuscularly next, and intravenously the least frequent of any method. The favorite area selected for the subcutaneous method has been below the scapula. The objections to this method, as well as the area, are that it is most painful and slow of absorption, and that the infiltration in the area inoculated is marked and remains indefinitely. The girdling pain in the intercostal nerves is most intense and often requires anodynes for its control. The intramuscular method of administration is less painful and the resulting infiltration, while marked, more rapidly disappears than in the subcutaneous method. The ideal method, which is coming rapidly into favor, is the intravenous; it not only is less painful, but the effect of the dosage can be more accurately estimated. Its action, when given in this way, is far more prompt, and the salt is eliminated correspondingly more quickly.

Recently some investigators have combined the intravenous and intramuscular methods, which seem to exclude some of the undesirable effects of each method when used separately. To prevent marked induration and possible necrosis, the injections should be administered in two or more directions, rather than depositing the whole dose in one area; dividing the dose, then, and administering a portion to each buttock, is without question of advantage and may prevent troublesome complications.

Method of Preparation.—Here again, as in the mode of administer-

ing, and in the dosage, great difference of opinion still exists. Ehrlich has recently recommended that the preparation is more efficacious if used in slightly alkaline state. Most of the doses thus far given have been administered in a neutral state, or slightly alkaline, suspended in distilled water or normal saline solution. Recently some investigators have been obtaining results quite uniform, when compared with other results, by administering the salt in paraffin oil, such method being used in outdoor clinics. The method employed by the writer has been that recommended by Wechselmann, and later by Junkermann and Lesser.

The reaction produced by the injection varies greatly; the local swelling in the area of the injection becomes most pronounced on the third and fourth day, and continues at this stage of infiltration for several weeks. Tenderness in the area diminishes to a very marked degree at the end of the first week, so that the patient is able to go about with comparative comfort. There is marked acceleration of the pulse in a large per cent of cases, but the temperature is slight if any, corresponding to the amount of pain. In only one case in which it has thus far been administered personally, was there profound toxic symptoms, which subsided after a few hours.

Schreiber's method of preparation seems to be the one selected for the intravenous administration. From this method the constitutional disturbance is much more pronounced, while the local symptoms are nil; the patient has a chill, and over fifty per cent have nausea and vomiting, yet the disagreeable symptoms from this method appear in the first twelve hours. A profound depression upon the third day is often most marked with aching pains and general soreness of the muscles.

In my selection of cases in which salvarsan has been administered, all have been of that class unresponsive to mercury or iodid, and all were adults. The patients were, as far as possible, advised to go to the hospital, where it is necessary for them to remain in bed for at least four days,—better one week. Care was taken to administer the salt to only healthy syphilitics, Wassermann tests being made in all before injections, and at weekly intervals after its administration for a given period. Conditions of the heart, eyes, kidneys, nervous system and differential blood counts were carefully determined by specialists for possible counterindicating conditions of these organs.

Clinical Observations After Its Administration.—The most startling effects of the drug after administration were noted in the cutaneous tertiary manifestations. Within forty-eight hours marked improvement was manifest, with a disappearance of extensive lesions in from ten days to two weeks; these disappearances being more prompt than that obtained, as a rule, from mercury or iodid in this stage. Unless one has personally observed its effect upon rebellious lesions, it is almost impossible to comprehend the great number of reports that have come from scores of observers. The rapid disappearance of the lesions has the most encouraging effect upon the syphilitic mentally, and the effect upon metabolism, which is quite uniform, is most extraordinary. Patients have gained as high as a pound every day for fifteen days. The selective action of the

drug in the destruction of the organism is borne out clinically to a degree, and the prompt disappearance of the organism from the lesions; yet recurrences are reported, and often in a very short time after its administration.

The most conclusive test of its efficacy should be in its use in the early stages of the hard sore, or the initial lesion, thereby preventing the symptoms of general infection, or the secondaries; yet this cannot be claimed for the drug. It will not prevent the development of the secondaries in all cases when administered long before their appearance. Recurrences demonstrate that while the cutaneous manifestations, which are most accurately observed, melt away, there still remain latent organisms that are not destroyed.

It has not as yet been determined whether salvarsan attacks the treponema as salvarsan or whether it is transformed or split up into a different chemical possessing parasitocidal properties. This is a phase of experimentation to which Ehrlich is at present devoting special attention. How and by what organs and the rapidity of its elimination much has been definitely determined. Elimination may be influenced or retarded by the mode of administration of the drug, its combination with other drugs, or when quickly following the use of mercury. Some striking proof other than the clinical effect of the drug has been reported. Reinke reports that in the microscopic examination of the organs of two babies who died four days after the injection, no treponema could be found except in the lungs, and these showed very marked degeneration. Neisser has inoculated a monkey with the treponema pallidum, and after the chancre had well developed, he injected salvarsan into the animal. A month later he was able to successfully reinoculate this animal with syphilitic virus. This is quite convincing evidence of the remarkable effect of a single injection. On the other hand, the inefficiency of salvarsan is not only becoming more and more in evidence in the number of cases of syphilis that are uninfluenced, but in the increasing percentage of recurrences being reported. Most of the investigators have attempted to check the efficiency of salvarsan by the Wassermann test, but its effect upon this reaction has been so varied that little, if any, importance can be attached to any change in the test after the administration of the drug. Its influence upon the Wassermann reaction is not as prompt or uniform as that produced by the administration of mercury.

With the evidence to date carefully weighed, we are met with disappointment in the partially realized hope for Ehrlich's discovery for the cure of syphilis. It certainly cannot be given preference to mercury. That it produces an unusually favorable action upon the disease in destroying the organism is accepted. It will, therefore, be a powerful assistant because of its promptness of action. Its exact therapeutic action remains yet to be established. We must continue further to observe carefully the effects of this drug salvarsan, either favorable or unfavorable, in order to definitely affix the limits of its value.

ACUTE POLIOMYELITIS.*

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ACUTE POLIOMYELITIS is an acute, probably specific, and usually febrile illness which affects children for the most part and young adults. However, it may attack one at any time of life from birth to the grave. There is a confluent or discrete inflammation of the gray and sometimes white matter of the cord and brain stem with meningeal irritation or inflammation. As a result there occurs a destruction of some of the nerve cells and consequent degeneration of their axis cylinders and atrophy of muscles supplied by these. Because of this condition there occurs a rapid atrophic paralysis of certain muscles of limbs and occasionally of those of the head and trunk. The maximum paralysis is reached in a few hours to a day or two. There is a tendency toward recovery in some parts and to production of permanent disabilities and deformities in others.

Individual cases of acute poliomyelitis were described by Underwood (1784), Shaw (1822), and Badham (1835), but the knowledge of this disease remained very limited and its separation from other forms of paralysis of childhood was not established. In 1840 Jacob Von Heine observed the disease and recognized that the spinal cord was the seat of the lesion. He described especially well the atrophies and deformities of this condition. But the pathologic anatomy of this affection remained obscure; one side claiming it was a spinal and the other a peripheral paralysis. These views were based on clinical observation and not from autopsy findings. Cornil (1863) was the first to recognize distinct alterations in the spinal cord, and Prevost and Vulpian (1865) to make the positive observation that the anatomical lesion was principally situated in the anterior horn cells. This view that the disease was due to a primary cell change was upheld by Lockhart Clark, Charcot and Joffroy. Roger and others voiced the opinion that a primary inflammatory process was the basis of the disease. Vogt and Duchenne described the disease in adults in 1858 and 1864 respectively.

The first epidemic we know anything about occurred in Louisiana (West Feliciana) in 1841, reported by Colmer in 1843. In 1908 Holt and Bartlett collected the literature of thirty-five epidemics and Starr reported forty-four. The disease has occurred epidemically outside of this country in Sweden in the early eighties; in southern France and Norway in the middle eighties; in the nineties in southern France, northern Italy, Sweden, Norway, Australia, England, Germany, Austria; in Sweden and Italy in 1903, in Australia in 1904, in Norway in 1904, 1905, 1906. In this country there were epidemics in Louisiana in 1841; in Boston in 1893; in Maine and Alabama in 1896; in New York City in 1897; in Pennsylvania in 1898; around Poughkeepsie in 1899; in Gloucester in 1899; in San Francisco in 1901; around New York City in 1907; in Wisconsin in 1908; in New York City in 1909; in

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Massachusetts in 1909; in Cuba in 1909; in Pennsylvania in 1910; and a great many cases in Rhode Island, Minnesota, Iowa, the Dakotas, Nebraska, Kansas and Washington. In this state there have been a number of small epidemics in the last three years.

In Detroit there have occurred between one hundred and one hundred and fifty cases which began since the first of 1910. I have personally seen fifty-six of these cases. None of those I saw died and none had a complete recovery. Only three of the fifty-six had symptoms of meningeal involvement of severe enough type to make the diagnosis difficult from a clinical standpoint. In my cases no two occurred in the same family and as far as I could determine there was no contact infection in any of these. They apparently appeared to be sporadic cases.

Taking Starr's statistics of epidemics from 1841 to 1907 there were 2680 cases outside of this country, while in the United States there were during the same period 208 cases, making a total of 2888 cases. Since 1906 we have had 5300 cases (New York City 2500 cases, Wisconsin 500 cases). As there have been a large number of other epidemics since 1906 in this country, the disease seems to be increasing at an enormous rate. Joseph Collins suggests that some of this increase may be due to the fact that many cases formerly diagnosed as grip, rheumatism, neuritis, bulbar paralysis are now recognized to be clinical varieties of poliomyelitis. This apparent increase led the Rockefeller Institute to make a careful study of this condition. Their report you have all seen.

Acute poliomyelitis is produced by an ultramicroscopic filterable virus. It has been proven in monkeys that the virus can enter the body through the nasopharynx by means of the lymphatics into the leptomeninges, causing a more or less diffuse interstitial infiltration with round cells especially about the blood-vessels. There is also a cellular infiltration and edema of the perivascular spaces in the cord. Sometimes hemorrhages are found. These lesions occur in the gray matter of the cord (anterior and posterior horns), the commissure and white matter. The anterior horns are most affected. The infiltration of the perivascular sheaths of the vessels is continuous with that of the piaarachnoid. In some cases the brain shows lesions similar, though milder in character, to those in the cord.

These lesions produce temporary and permanent paralyses. The temporary paralyses are due to reduction in size of blood-vessels (interstitial infiltration), causing an anemia of the part, slight degeneration, focal hemorrhage and edema. In all these paralyses complete function may be obtained by absorption of filtrate, return of circulation, absorption of hemorrhage and edema. Permanent paralyses are produced by severe cases of degeneration and other lesions by means of which actual necrosis is produced. These of course never recover completely although life is often spared.

The virus can enter the body through the nasopharynx and be eliminated through the same portal. The blood contains the virus in small amounts. There is little if any of the virus in spleen, bone marrow, and liver. It is found in some of the lymphatic glands (axillary, inguinal

and mesenteric). It is not found in feces and urine. It is found in spinal fluid just before or at the time of onset of paralysis. The fluid at this time has an increased number of cells with a slight opalescence and is subject to spontaneous coagulation. It also contains an excess of proteins. These changes are of slight duration and the fluid soon becomes clear, noncoagulable, but has an increased amount of protein. The clear fluid does not contain the virus.

Human beings and monkeys who have had an attack of poliomyelitis have in their blood certain neutralizing principles which persist in the former at least for two or more years. This is proved by mixing virus with serum of a patient or monkey who has had the disease and incubating the mixture for the proper time. This mixture when injected into monkeys will not produce the disease. Normal serum does not contain these neutralizing principles. Therefore it is very rare to have a person have acute poliomyelitis more than once.

Again if one injects the virus into a monkey and injects within twenty-four hours into the subarachnoid space the serum of a monkey or patient who has had the disease (whether the serum has been reinforced or not) the monkey either does not get the disease or else the onset is delayed. If successful, the immunity does not last for any length of time. Flexner's deductions are: (1) A neutralized mixture of virus and immune serum does not lead to any degree of active immunization; (2) the therapeutic action of an immune serum is associated with restraint of multiplication of the virus such as would be required to establish any grade of active immunity; (3) a simple passive immunity is either not produced at all by the serum injection or is of brief duration or small amount.

The Rockefeller Institute has endeavored to get a serum from a horse without success. At present the experimenters are trying to obtain a serum from a sheep which will be potent enough. The serum is at the present time only in an experimental state. It cannot be told how soon or whether at all such a serum will be applicable to epidemic poliomyelitis in human beings.

It has been suggested that poliomyelitis, like meningitis, may be found to arise from several independent causes. It might be divided into epidemic form with its specific virus and other forms with their nonspecific viruses.

Apparently there is a considerable difference in the mortality of sporadic and epidemic forms. In epidemics the mortality runs between no per cent and forty per cent, with an average of about five per cent, while in sporadic cases I think a fair mortality rate would be one per cent or less.

Looking at the disease from the standpoint of preventive medicine the question naturally arises, Is it contagious? Since the publication of Wickman's paper on the epidemic which occurred in Norway in 1905, the contagiousness of this disease has been admitted. Doctor George E. Shidler, who reported the 1909 epidemic in Nebraska, stated that indirect or direct contact will spread the disease. The degree of contagious-

ness seems to differ in the various epidemics. It would therefore seem a sensible thing to do to quarantine cases in epidemics. My experience, however, with sporadic cases has been that they do not infect those around them. In epidemics, hydrogen peroxid is advocated for nasopharynx as a preventive measure.

As to treatment I have little I wish to say. In acute stages hexamethylenamine, calomel with salines and rest are indicated. Massage, electricity and passive movements can be used, but should be conservative in character. Operative methods can be carried out after several months. Some kind of support to prevent possible deformities is occasionally of use. Unfortunately there is no method of treatment that will cure the disease and return to normal its unhappy victims.

91 Lafayette Boulevard.

OBSTETRIC PRACTICE IN INDIA.*

JENNY ENGLISH CROZIER, M. D.
MAUDHA, INDIA.

CONDITIONS in India, in some respects, are similar to those in China. There is no such thing as gynecology. Perhaps I can give you a clearer idea of the situation there by examples than in any other way.

I was a young practitioner unacquainted with the customs of the people when I went to India and was called to attend a very young woman in a village three miles away. Although there is a law against it, still we have child marriages. Only a month before I left India, I met a wedding procession; a girl of eight or nine years was being taken to a village several miles away, to be married to a little boy. In the procession were forty-five men and no women. The girls of ten or twelve years are often married to men of thirty or forty or even more, and consequently we have some terrible conditions to deal with.

The patient was a girl perhaps fifteen years of age. She was lying on a rough cot in a veranda at one side of the courtyard of a small one-story mud house. No provision is made for the birth of a child except in cases where the people have heard of English customs. One cannot get a clean piece of cloth. There is no pad or basin for receiving the discharges. It is their custom to allow these to fall upon the mud floor. The woman had evidently been in labor for a long time, and I decided to use instruments. The lacerations which resulted required the taking of three stitches. I did not know the people or their customs well enough to realize the necessity of repeating my instructions for the care of the patient over and over again. I went away, leaving the woman on the veranda, supposing that she was going to sleep there. I went back two days later and found every stitch pulled out and the wound badly infected. Shortly after my leaving she had gotten up, walked across the courtyard to a low, dark, family sleeping room. There are no windows in their rooms, and therefore sunlight never enters.

*Notes from an address delivered before the senior medical class of the University of Michigan by a member of the class of 1904 of the University of Michigan, and a missionary in India since graduation.

The children in India are not generally large as they are in China, but there are a great many shoulder and arm presentations. I was called three times to see one woman who was aborting at the third or fourth month. In each case the shoulder or hand was presenting, and the child came away en mass. I explained the condition to the husband and told him to let me know at once the next time she became pregnant, so that I might make it possible for her to carry the child to full term, but they did not call me until it was too late to save the child. She seemed to have a bifid uterus.

To show the condition of the lying-in room,—I was called to see a priest's wife who had been in labor many hours. The priests are the well-to-do people of the town, and live in large houses, two or three stories high, built of brick. The one to which I was called had a long, narrow open courtyard, divided by a low brick wall, with two halls, one leading to the men's apartment and the other to the women's. I entered the women's apartment through a small doorway in the brick wall, and entered the lying-in room on the opposite side of the hall. This was about seven feet long by five wide, devoid of furniture except for the rough cot on which the sick woman was lying. There was no window or other opening except the door by which I had entered.

Beneath the ceiling, on poles supported by long wooden pegs, were broken portions of earthen water pots, covered with dust and cobwebs, and containing pigeons' nests. The birds flew in and out as I examined the woman and found the hand prolapsed. I saw it was necessary to perform version. Knowing asepsis to be impossible in this place, I turned to the woman—there is always a crowd standing around—and said: "Is there not a room in this house to which I can take this woman? I must have a cleaner place?" "There is no other place," they said. The custom was for the women of the household to be confined in this room. They are considered unclean at this time—and they are decidedly so. Anything is good enough. I could not have her in any other room in the house, and so had her removed to the uncovered hallway, thinking the dust disinfected by the hot Indian sun was better than the dust of bird's nests. By the light of a lantern, and without any assistance, I performed version and delivered the child.

As it is in China, so in India, the women can stand a great amount of infection. I rarely have heard of a woman dying of puerperal fever. I have never had such a case myself.

The following is interesting to illustrate hysteria, which is very common in India: I was driving through a town one day, and saw a woman dragging herself through the dust of the road toward me. Placing her head at my feet she plead for help. I told her to come to the hospital for treatment but she said she could not. I questioned her and found that her husband was probably indifferent, so I went to her house and found a cold-faced, cold-hearted man, wrapped up in his petty business. I tried to get him to bring his wife to the hospital and he promised to do so, but in such an indifferent way that I knew he would not fulfill his promise. She was helpless and could do nothing. I appealed to the men standing

around to persuade him to bring his wife. He did not bring her, and finally I went there and found her on her little bed of straw in a corner of the room. She got hold of my clothing and begged me to help her. Finally her father brought her. She said that she had been pregnant at one time, but the child had died and the bones were still "in her stomach." I found absolutely nothing the matter with her; she seemed to be perfectly normal in every way except mentally. I told the nurse to give her a douche, and her father to bring her back again for treatment, but he did not. Later, just as I was about to leave for a ten days' vacation, she was brought by her brother, who said he would stay until she got well. I gave instructions for her care, and went away. When I returned, they told me that she had run away. "Why, she could not walk," I said. She had become frightened when offered cooked rice from the bungalow table. She thought the eating of that would make her a Christian. I inquired into the case, and was told that the woman had died. I felt badly about it, and wondered what would be the influence on the people. One day as I drove near her home, I saw her coming up the road, smiling, perfectly well, and happy. Being frightened was the best thing that could have happened to her.

I went to see a woman in labor in a village just a short distance away? I found her lying on a cot, swollen from head to feet with edema. I examined her and found that she had passed through the first stage of labor, but fearing eclampsia I went home as quickly as I could for my instruments and medicines and returned. Before I arrived the child had been born, and they were very grateful for what I had done. I went on anyway, and found the woman in her little room—cooking place in one end, and the bed in the other—squatting in one corner, the child lying in a little wicker basket. The placenta had not come away, and the women of the neighborhood were gathered around the door. Not one of them would come in and touch her, for she was unclean. The husband was there, doing what he could. There was no dai (midwife). Midwifery is hereditary in India. They can conduct ordinary cases. After a long time of waiting, I saw the woman was getting weak, so decided to help her. The women about the door said, "Do not touch her. She is unclean. It is beneath you." I wanted to change that idea and told them to put her on the bed. A slight twist of the protruding placenta removed it. The dai soon came and I stood back to see what she would do. The man, in the meantime, had prepared to cut the cord. He did not use his finger-nails as they do in China, but picked up a little, old, rusty pocket-knife, rubbed it on the bed, and brushed it off on his dirty clothes. He then broke off a small piece of an old earthen water-pot, placed the cord upon it, and leaving about three inches, which he had tied, sawed it off with the old knife. He then reached over to the fireplace where he had been warming molasses to give to his wife, picked up a little cow-dung ashes, and put it upon the cord. No bandage was used.

There is not a stitch of clothing prepared for the child before it comes. I told him to go to the dispensary, and he said he would do so. When

I saw him again and asked him why he had not come, he said that he was giving her something. He evidently did not want foreign medicine. The next morning he came and said his wife was dying, and asked me to hurry to her, but she died before I arrived at the house.

They do not give the child a bath for eight days, but rub it with sweet oil. The woman is often rubbed with mustard oil. She is fed on a mixture of spices for two or three days. They have no conception of the diet necessary for a sick person.

The British government is introducing in many places a course of study for the uneducated native midwives. They are encouraged in every way possible to take this course of instruction wherever offered.

In regard to men physicians, the conditions are the same as in China. No man, outside the family, is allowed to see a woman of the better classes. The only thing he is allowed to see is the hand, or pulse, and this may be that of a servant. Owing to the number of foreign physicians in the country this prejudice is breaking down to some extent.

TRANSACTIONS.

CLINICAL SOCIETY OF THE UNIVERSITY OF MICHIGAN.

STATED MEETING, DECEMBER 10, 1910.

THE PRESIDENT, REUBEN PETERSON, M. D., IN THE CHAIR.

REPORTED BY JOHN WILLIAM KEATING, M. D., SECRETARY.

REPORTS OF CASES.

INFANTILISM WITH PITUITARY DISEASE.

ALBION WALTER HEWLETT, M. D.

Department of Medicine.

THE patient whose history I wish to present this evening is forty years old. He entered the hospital on July 7, 1910, complaining of dimness of vision, palpitation, and general weakness. His family and past history were negative. At the age of twelve or fourteen he began to suffer from headaches which recurred, up to three years ago, at intervals of from one to two months and were associated with vomiting. During the past three years his headaches have increased in severity but the vomiting has lessened. Six years ago he was advised to drink large quantities of water and he believes that since that time he has passed larger quantities of urine and that he has been unusually thirsty. On July 13 he left the hospital but returned again on November 29 with his old complaints of headaches and dimness of vision. As this photograph [Figure I] shows, he is a short man of slender build, his height being five feet two inches and weight seventy-six pounds. There is a noticeable absence of facial, axillary and pubic hairs. The hands are long and slender. Examination of vision shows a bitemporal hemianopsia. The urine shows a low specific gravity on all examinations. The x-ray plate shows an abnormally large sella turcica. The fundus of the eye shows a primary optic atrophy. We

believe that this patient has a tumor in the region of the pituitary gland. This has probably existed since the twelfth or fourteenth year and experience has shown that such tumors are apt to be of cystic nature. This has pressed on the pituitary gland and lessened its function. The pressure on the optic chiasm has caused a primary optic atrophy and a bitemporal hemianopsia. The absence of normal sexual development and the stunted growth are probably due to the lessened secretion from the pituitary gland. Operation has been considered, but in view of the fact that it is not likely to save the patient's eyesight and that it is very dangerous, the patient has declined to have it done.

DISCUSSION.

DOCTOR THEOPHIL KLINGMANN: The great majority of cases of infantilism are due to disease of the pituitary body and are of the acromegaly type. As many as seventy-three cases of acromegaly out of seventy-seven have shown disease of the hypophysis. I think the case is an exceptional one from the fact that the patient is symmetrically developed and represents physically a normal individual of thirteen or fourteen years of age. At the same time his mental development is that of a man of forty years which is the patient's present age; in other words, he represents a type of infantilism which is not characteristic of disease of the pituitary gland but is just the opposite condition and represents closely the Loraine type of infantilism which is very unusual in disease of the hypophysis. I would like to ask Doctor Hewlett if he knows of an analogous case.

DOCTOR R. BISHOP CANFIELD: I would like to suggest the following technique for operation upon tumors of the pituitary body. The methods heretofore used to approach the pituitary body are extremely dangerous and most of them have been fatal because of the gravity of the preliminary operation necessary for approach to the pituitary body. I would suggest that it is possible to reach the pituitary body through the nose by what is commonly called the submucous resection of the bony and cartilaginous septum, without removal of the mucous membrane. If the bone and cartilage of the septum are completely removed and the mucous membrane not injured, we have a perfect aseptic avenue of approach to the pituitary body. This operation can be performed as a preliminary step to the removal of the tumor. It can be performed under local anesthesia without pain. If the patient is not in good condition at the end of this step, the space between the layers of the septum can be packed with gauze and the pituitary tumor attacked at a later date. This method of operating affords an adequate approach to the pituitary body which can be followed without great technical difficulty and without great shock to the patient. It can be carried out in two steps if necessary, without hemorrhage, external incision, or necessity of suture.

DOCTOR HEWLETT (closing the discussion): Doctor Klingmann has pointed out that this is not the form of infantilism most commonly associated with pituitary disease. More frequently the patients are obese and present the appearance of an overgrown child, while here we have the



FIGURE I.—Infantilism with Pituitary Disease.

general appearance of a man whose development has been arrested at adolescence. I have seen a case of the former type in San Francisco and this is certainly more common in pituitary disease. Quite recently, however, a case of the latter type has been reported from Dock's clinic in New Orleans. The difference may be due to the age at which the condition developed and when, as in this patient, the first symptoms began at the age of puberty, one may expect an infantilism of the adolescent type.

***A CASE OF RETAINED MENSTRUATION DUE TO ATRESIA OF THE
LOWER PART OF THE VAGINA WITH OPERATION BY THE
COMBINED ABDOMINAL AND PERINEAL ROUTES.***

NEAL NARAMORE WOOD, M.D.
Department of Obstetrics and Gynecology.

Miss L. H., American, unmarried, age sixteen, Gynecologic clinic number 312. Transferred to this department by Doctor de Nancrède from the surgical clinic on October 6, 1910.

The family and previous personal history were negative.

Her chief complaints were of very severe sharp pains in the pelvis and lower abdomen and amenorrhea. The first severe attack of pain was on August 14, 1910, though some indefinite and possibly prodromal pains had been noted once two years previously and again a second time one week before this date. This time an anesthetic was administered and the supposed imperforate hymen was incised. The anterior wall of the rectum was opened but no menstrual discharge was obtained.

The patient was admitted to the hospital on August 23, as number 4259 in the Department of Surgery, service of Doctor de Nancrède. Doctor Darling operated upon her the next day and closed the rectal fistula through a short median vertical incision in the perineum between the posterior thirds of the labia. This incision was packed with iodoform gauze and the patient discharged on August 31 after an uneventful convalescence.

A second attack of sharp pains occurred on October 2, for which she was given morphin hypodermically and by the mouth. These pains continued for three or four days and she was brought back to the University Hospital.

Examination by Doctor Peterson on October 9 gave the following: The abdomen is slightly below the rib level and is soft, there being no tenderness nor rigidity. A slight umbilical areola and linea nigra are present. An indefinite mass can be palpated just above the symphysis pubis. This mass can be more accurately outlined by bimanual recto-abdominal examination and is found to be semifluctuating in character, fills the true pelvis and is only slightly movable. No appendages nor pelvic organs can be recognized as such. The clitoris is free. The labia majora are undeveloped. The labia minora are rather large. At first sight there is simulated a slightly gaping introitus through which can be seen a few tags of mucous membrane, resembling the caruncles of the hymen. However, exposure by separating and retracting the labia minora shows that there is no vagina but only a shallow pocket which ends blindly internally. The simulated vaginal introitus and caruncles are seen to be the result of the irregular healing of the old vertical incision in the floor of the vestibule. The breasts are small and undeveloped.

The general physical examination of the patient is negative. Blood examination shows 90 per cent. hemoglobin, 5,780,000 red cells and 10,500 white cells. The examination of the urine is negative.

Neural examination by Professor Camp showed some stigmata of degeneracy, such as irregularly set teeth (no double row), overgrowth of hair on various parts of the body, back, et cetera. There was a semilunar area of referred hyperesthesia of the skin extending across the mons veneris and upward along each side of Poupart's ligaments as far as the anterior superior iliac spines. Some indefinite hyperesthesia of the lumbar and upper sacral regions was also noted.

Operation by Doctor Peterson on October 25, 1910. Bimanual recto-abdominal examination under ether failed to disclose any further points regarding the presence of the ovaries or the location of the cervix uteri. The abdomen was opened by a short median suprapubic incision. There were some adhesions about the right ovary and tube. The fimbriated end of the right tube was closed by delicate adhesions and the tube was somewhat distended by a brownish red semifluid material resembling old blood. The uterus was large, dark purple in color and of semicystic consistency. Below the bladder fold of peritoneum could be seen the bulging of the much distended upper portion of the vagina which formed a tumor fully three-fourths as large as the fundus.

After packing the intestines back out of the pelvis the patient was put in the lithotomy position. With a sound in the bladder, and one finger in the rectum, the relations of the distended upper vagina (which was pushed down by an assistant's hand in the abdomen) were studied from below. A transverse incision was now carried slowly upward for about two inches through the center of the perineal body until the finger in the wound could recognize the tense fluctuating vagina above. The latter was now freely incised and the thick reddish-brown semifluid contents of the uterus and vagina evacuated. The lower edges of the vaginal mucous membrane were now drawn down with silk traction sutures which were tied to the margins of the perineal skin incision. A large glass drainage tube was passed up into the vagina and fastened in place.

Though the operation did not seem at all severe the patient seemed shocked and the operation had to be finished quickly. However, she responded promptly to stimulation and made an excellent recovery.

The old rectal fistula which was accidentally reopened during the operation healed promptly and never discharged.

Since removing the drainage tube it has been necessary to dilate the wound regularly and some plastic operation or skin graft will no doubt be necessary soon in order to insure the permanent patency of this canal.

DISCUSSION.

DOCTOR REUBEN PETERSON: That the case demonstrated by Doctor Wood is one of extreme rarity is shown by a study of the literature. Usually where there is complete absence of the vagina, as in this case, the uterus is also wanting, or is represented by a small piece of fibrous tissue. In a rather extensive special practice of over twenty years I have never seen such a case.

In some respects the case resembled an imperforate anus with the end of the gut situated high up. Also like some cases of imperforate anus it

illustrated the difficulties encountered in a dissection from below when landmarks are obliterated. To avoid injury to the rectum and urethra it was thought best to open the abdomen so as to press down the fluctuating mass from above after accurately outlining the tumor.

If we are to preserve the uterus and appendages, it obviously becomes necessary to construct a vagina, for the present opening, not being lined by mucous membrane or skin, will soon close. When the uterus is absent, a loop of bowel has been utilized to line a newly constructed vagina but with the uterus present there would be serious objections to such a procedure. Again such an operation would entail some risks, more than the parents would be willing to run, since they are anxious to have a hysterectomy performed. This operation, however, is unjustifiable except as a last resort. Later on this young girl may wish to marry. In this case she would have serious grounds for complaint that some attempt had not been made to overcome her congenital defect.

Probably it will be possible to take some skin flaps from the buttock or from the inner side of the labia. At least attempts will be made along this line with every prospect of success.

*REPORT OF A CASE OF MENTAL TROUBLE FOLLOWING
INJURY TO THE EYE.*

GEORGE M. KLINE, M. D.

Department of Psychiatry.

THE patient whom I wish to present is a young Russian, aged twenty-one. Practically nothing is known of the family history and little can be learned from the patient because of his limited English. As far as could be ascertained, however, there is no history of mental trouble in the family and the patient's early life was unimportant. He immigrated to America three years ago this month and since last May has lived in Ionia. He has no relatives or intimate friends in America and at Ionia lived with French people. He was employed in a chair factory at the State Prison. On August 1 of this year while removing a nail the right eye was injured. Previous to this injury there had been no peculiarities of conduct or evidence of mental trouble. The information regarding his mental symptoms is incomplete. For four weeks after the injury he was treated by several physicians, one of whom told him that the injured eye might have to be removed. About the 1st of September he imagined that people on the street called him blind, that pictures of him were being printed in the papers, and that he was being made fun of. His peculiar remarks and actions became so noticeable that he was arrested. During his stay in jail he showed numerous newspaper pictures to others, pointing out the devil as a picture of himself. He complained of hearing people and imagined that he was to be injured. When not talking of being harmed, he was quiet and rarely spoke. At no time was he resistive. He was committed to the State Psychopathic Hospital October 10, 1910.

The right eye-ball was smaller than the left, the pupil almost obliterated, sight lost except for light and he thought the sight of the left eye

was not as good as before the injury. Otherwise the physical and neurological examinations were negative.

On admission he appeared fearful of impending harm. He complained of pain over the right eye. He was referred to the Ophthalmic Department the day following admission. A report advising enucleation of the right eye was returned. On October 23 the eye was removed. After the operation he was very apprehensive, kept asking to be killed and to know why he should be made to suffer as he had not committed murder. It was necessary to give him morphin to quiet him and again the following morning he said he heard the patients in the ward talking about him and calling him blind as they had in Ionia. On the third day following enucleation his attitude was again normal and has remained so since.

The most reasonable explanation for the patient's mental condition, it seems, is that it is due to peripheral nerve irritation following the eye injury. It must be borne in mind that he did not speak English very well and lived entirely among strangers with whom he could converse but little. It is only natural that in such an environment he would be suspicious, and misinterpret the actions of others following the shock of the injury and operation and subsequent irritation. The condition is probably analogous to the abnormal mental states sometimes observed following cataract extraction and certain disturbances of consciousness noted in senile delirium.

DISCUSSION.

DOCTOR KLINE: There is a legal aspect to this particular case, inasmuch as the patient has been in America only three years and is subject to deportation. The law requires that these cases be reported to the Immigration Bureau, where judgment is passed upon them. In this particular case it would seem wrong to send the patient back since the mental disease was due to injury, and there is no intimation that he had had any trouble before. Moreover we cannot say that he will have mental trouble in the future. Therefore it would seem too bad to deport this young man. The operation was quite a success, and a glass eye will soon be substituted.

THE PHYSIOLOGICAL STANDARDIZATION OF ERGOT.

CHARLES W. EDMUNDS, M. D.

Department of Pharmacology and Therapeutics.

THERE are three methods commonly in use for testing ergot by physiologic means, the oldest being the production of gangrene in the cock's comb. In addition to this method, preparations are tested on the uteri of animals, either with the organ *in situ* or isolated and suspended in saline solution, and the relative strengths of contractions produced by different samples of ergot compared. Finally the relative rises in the blood pressure of dogs produced by different samples are also compared. This study was carried out with the idea of testing the different methods and seeing how the results obtained by one corresponded with those obtained by others, and what advantage, if any, each method possessed. It was

found that the cock's comb method gave almost identical results with those obtained on the uterus, while the blood pressure results, although agreeing in many cases, yet showed some marked discrepancies. As the drug is used mainly for its action on the uterus this would seem to be the most logical method of testing, but the technical difficulties with this method are quite considerable. The cock's comb method, since it gives similar results, would seem to commend itself, being so simple and comparatively easy to carry out.

The chemical methods of assay which have been suggested were also tested, but were shown not to be reliable as the results obtained by them did not agree with those given by physiologic methods, and the results obtained by chemical analysis are therefore not an index to the activity of the drug.

DISCUSSION.

DOCTOR REUBEN PETERSON: I am glad that Doctor Edmunds has undertaken such an important research work on ergot. For a long time I have felt that the reason more harm does not result from the haphazard method of administering ergot in obstetrics, is because in most instances the drug is practically inert. Otherwise serious accidents would result, since ergot is ignorantly given in all stages of labor. The reason ergot should not be given in the first or second stages of labor is because the resulting contraction which follows its use is continuous and not intermittent. Hence the child or the placenta may be retained because of inability or the part of the uterus to overcome this tonic contraction. I have always taught that in case it seems advisable to administer ergot, it should only be given after the uterus is empty. Even after the birth of the child it is not well to give ergot for fear that it may interfere with the removal of the placenta, if the latter does not readily come away.

CHRONIC SUPPURATIVE OTITIS MEDIA WITH CHOLESTEATOME OF THE MIDDLE EAR, MASTOID, SIGMOID SINUS, AND JUGULAR VEIN: OPERATION AND RECOVERY.

R. BISHOP CANFIELD, M. D.

Department of Otolaryngology.

THIS patient was brought to the University Hospital on account of a discharging ear which she had had since childhood, and on account of which she had been treated at irregular intervals without permanent result. For months at a time no discharge would be noted. Five months ago the ear began to discharge again without pain and continued to discharge until one week ago. Ten days ago, the patient had a severe pain in this ear, accompanied by chills and fever. Since that time her physician says she has had a high temperature. She has been nauseated and vomited several times, but has not been dizzy. The swelling appeared in the right side of the neck several days ago. The neck became stiff and she had considerable pain in the back of the neck and the top of the head. All pain and tenderness are now localized in the region of the mastoid. A week ago there was some distension of the abdomen, on account of which a Widal test was made with negative results.

Upon entrance into the hospital, she was seen to be lying in the active dorsal position, perfectly rational, with a temperature of 102.5° , pulse 168, respiration 24. She showed a slight horizontal nystagmus when the eyes were directed to the opposite side, less marked when the eyes were directed to the same side. The pupils were normal and the fundus was negative. Moderate limitation of excursions of the eyes in all directions. Diplopia when eyes are directed straight forward. This diplopia was noted for objects held in the hand, but never for the hand. The right ear contained foul smelling pus, the tympanic membrane was replaced by scar and there was perforation through the posterior canal wall into the mastoid. Tenderness existed over the posterior surface of the tip and along the anterior margin of the sternomastoid. There was some infiltration of the cervical glands. Urine, negative. Blood, hemoglobin 90 per cent; whites 40,700, 82 per cent polymorphonuclears.

Operation.—Radical mastoid operation with ablation of sinus and resection of jugular. The mastoid cavity was of fairly large size and filled with typical cholestoma, which occupied not only the mastoid cavity, but tympanum and attic. The sigmoid sinus was found uncovered by the disease for a considerable area. The external wall of the sinus was covered with purulent granulations. A perforation through the sinus wall showed the vessel filled with cholestoma for a distance of about one inch. No perforation through the inner wall was discovered. Second skin incision backward one and one-half inches uncovered the sinus to a point one inch above the superior petrosal. A curet gently inserted beyond this point secured moderately free hemorrhage. There was no hemorrhage from below. The jugular vein was ligated at a point below the facial, which latter was not thrombosed. One and one-half inches of jugular was received. The facial was ligated, and a few small glands removed. The cervical lymphatic chain was then dissected upward for a considerable distance and removed en masse. A cigarette drain was then inserted in the neck and the skin incision sutured. Attention was then turned to the mastoid wound. The dura, over the middle cerebral fossa, uncovered for an area about the size of a finger nail, was apparently healthy. On account of the destruction of the posterior canal wall, a very unsatisfactory flap was cut and held in place by catgut sutures. Mastoid wound packed. Three sutures taken in initial incision. On account of the weak condition of the patient, two slow enemas were given on the table. The temperature which a few minutes before the operation had reached 103.6° increased to 106.1° soon after the operation, after which in the course of the next twelve hours it dropped to 99.6° .

With the dropping of the temperature came a mild confusional delirium, toxic in character. She said she saw loaves of bread floating about in the air, water trickling down the side of the room, and recognized friends who were not present. Then in spite of the fact that she continued to run a low temperature, she developed marked irregularities of pulse. At one time within a few moments the pulse increased from 75 to 150. On the day previous to the one on which the most marked acceleration of pulse rate was noted, a small drop of pus was seen in the

sigmoid sinus in the neighborhood of the jugular bulb. The white count dropped to about 20,000 and remained in this neighborhood. During the next three days a drop of pus could be expressed from the neighborhood of the jugular bulb at each dressing. Her confusional delirium was now becoming intermittent, but with the improvement of her general condition, the deepest part of the wound showed no tendency to heal. On this account, she was again anesthetized and the jugular bulb and upper proximal portion of the jugular vein was resected.

Following this operation, she made an uneventful recovery with the exception of the fact that she developed a metastatic abscess on the back, examination of which showed a pure staphylococcus, identical with the infection of the ear and mastoid.

A CASE OF TUBERCULOSIS OF THE BREAST.

EARL INGRAM CARR, M. D.

Department of Surgery.

Mrs. S. W., housewife, twenty-two years of age, resident of Michigan, applied at the University Hospital October 18, 1910, on account of a mass in the right breast.

The family and previous personal history were negative, the patient herself having always been healthy and robust. There was no history of tuberculosis in her family or among those with whom she has been intimately associated. Patient was married at seventeen and has one child, three years of age.

Last April the right breast became swollen and tender to the touch. The swelling diminished shortly, leaving a small mass situated just external to the nipple. This remained stationary until July, when it increased in size and caused the patient considerable pain in the breast and down the right arm.

Examination—A mass the size of a small orange could be easily palpated in the right breast. It was situated external to the nipple and was not connected with the skin. The nipple was not retracted. The mass felt nodular and gave the impression of a cystic formation. A couple of kernels were thought to be palpable in the right axilla. The left breast and axilla were negative. Operation was advised.

On October 27, 1910, breast-amputation was performed and the axilla explored. The axilla was practically negative.

The patient was discharged three weeks after operation with wound healed. Pathologic report: Tuberculosis of breast.

Demonstration of Specimen.—The specimen includes the whole of the right breast. A region can be distinguished about the size of a small orange, which represents the diseased portion of the gland, comprising the mass felt externally. It is infiltrating the surrounding tissue. A striking feature of the diseased portion is that the process has developed uniformly. When the specimen was fresh, cross section revealed a mass of caseated material and a small amount of exudate.

In looking over the records of the surgical clinic two other cases of tuberculosis of the breast were found within the past two years. In one

there had been breaking down of tissue followed by spontaneous rupture; in the other there had been no other evidence than the mass in the breast, although the wound, caused by the home physician who had removed a specimen for pathologic examination, had not healed.

DISCUSSION.

DOCTOR N. N. WOOD: Several years ago, in the summer time, I examined in the pathologic laboratory, a specimen sent in from the outside, in which macroscopically the only recognizable lesion was a diffuse enlargement and infiltration of the breast. There were no definite nodules, so that in cutting the pieces of tissue for microscopic examination, there was not much choice. There was no caseation, but several sections showed fibroid tuberculosis.

A REPORT OF SEVEN CASES OF SYPHILIS TREATED WITH SALVARSAN.

MARK MARSHALL, M. D.

Department of Practical Therapeutics.

THROUGH the courtesy of Doctor Flexner of the Rockefeller Institute, the Department of Internal Medicine of the Hospital received ten doses of "606" for experimental purposes. The following is a report of seven cases selected for experimentation.

Thanks is due Doctor Clark of the Parke, Davis & Company laboratories and Doctor Luther F. Warren of the University Hospital for serum examinations on the patients treated.

The first patient was a male, aged forty-two, who had a chancre of the penis twenty years ago for which he was given local treatments. He never developed any secondaries that he knew of and never took any antisyphilitic treatment.

In July, 1910, patient developed a gummatous lesion of the frontal bone. About September 1, this gummatous mass was incised by his physician three weeks before coming to the hospital. At the time I first saw the patient, there was a mass on the forehead about two and one-half inches in diameter projecting from the frontal bone three-quarters of an inch. A seropurulent discharge exuded from the incised portion. The patient complained of loss of appetite and a general feeling of ill health. Wassermann positive.

On November 1 patient was given .6 of a gram of the "606" dissolved and administered according to the method of Lesser. A twenty cubic centimeter alkaline solution was made and ten cubic centimeters were injected deep into the muscular tissue of each buttock. The patient complained of severe pain at the time of the injection, which radiated down the legs. The pain became more severe in the course of an hour and morphin was required to give relief. A painful indurated mass developed in each buttock, becoming more painful and more tender up to the third day, after which there was a gradual improvement. There was still some tenderness to pressure on the twelfth day. There was never any redness of the skin over the indurated areas nor was there any fluctuation or softening observed.

believe that this patient has a tumor in the region of the pituitary gland. This has probably existed since the twelfth or fourteenth year and experience has shown that such tumors are apt to be of cystic nature. This has pressed on the pituitary gland and lessened its function. The pressure on the optic chiasm has caused a primary optic atrophy and a bitemporal hemianopsia. The absence of normal sexual development and the stunted growth are probably due to the lessened secretion from the pituitary gland. Operation has been considered, but in view of the fact that it is not likely to save the patient's eyesight and that it is very dangerous, the patient has declined to have it done.

DISCUSSION.

DOCTOR THEOPHIL KLINGMANN: The great majority of cases of infantilism are due to disease of the pituitary body and are of the acromegaly type. As many as seventy-three cases of acromegaly out of seventy-seven have shown disease of the hypophysis. I think the case is an exceptional one from the fact that the patient is symmetrically developed and represents physically a normal individual of thirteen or fourteen years of age. At the same time his mental development is that of a man of forty years which is the patient's present age; in other words, he represents a type of infantilism which is not characteristic of disease of the pituitary gland but is just the opposite condition and represents closely the Loraine type of infantilism which is very unusual in disease of the hypophysis. I would like to ask Doctor Hewlett if he knows of an analogous case.

DOCTOR R. BISHOP CANFIELD: I would like to suggest the following technique for operation upon tumors of the pituitary body. The methods heretofore used to approach the pituitary body are extremely dangerous and most of them have been fatal because of the gravity of the preliminary operation necessary for approach to the pituitary body. I would suggest that it is possible to reach the pituitary body through the nose by what is commonly called the submucous resection of the bony and cartilaginous septum, without removal of the mucous membrane. If the bone and cartilage of the septum are completely removed and the mucous membrane not injured, we have a perfect aseptic avenue of approach to the pituitary body. This operation can be performed as a preliminary step to the removal of the tumor. It can be performed under local anesthesia without pain. If the patient is not in good condition at the end of this step, the space between the layers of the septum can be packed with gauze and the pituitary tumor attacked at a later date. This method of operating affords an adequate approach to the pituitary body which can be followed without great technical difficulty and without great shock to the patient. It can be carried out in two steps if necessary, without hemorrhage, external incision, or necessity of suture.

DOCTOR HEWLETT (closing the discussion): Doctor Klingmann has pointed out that this is not the form of infantilism most commonly associated with pituitary disease. More frequently the patients are obese and present the appearance of an overgrown child, while here we have the

The improvement in this case began in a very short time. The rapid change in the throat condition seemed little short of miraculous. After fifteen hours the tonsils had diminished in size to such an extent that the patient was able to swallow with much less difficulty. The mucous patches had lost their irritability. In two days the tonsils were greatly reduced in size and the ulcers were beginning to heal. In six days both the tonsillar and laryngeal lesions were entirely healed. Eighteen days after the injection the Wassermann reaction was still positive.

The fourth case was a physician, aged thirty-four, who gave a history of a chancre of the finger in August, 1910. The sore was excised but no general treatment was begun until after the secondaries appeared two months later. The patient took Gray powder, grains two, three times a day for two weeks, blue mass, grains two, every four hours for two weeks. The mercury was then discontinued on account of intolerance of the patient. He was then given nine intramuscular injections of mercury, the exact form of the drug and the size of the dose not being ascertained. The last dose was given four days before the patient entered the hospital.

On admission the patient presented a maculopapular eruption over the entire body, being more marked over the back and forehead, mucous patches about the anus and a moderate injection of the conjunctivæ, particularly of the right eye. The patient looked distinctly ill and complained of loss of appetite. Wassermann reaction positive.

November 9, patient received .65 gram of "606" intragluteally. The local effects in this case were more marked than in any other. There was more pain and swelling from the beginning. The patient complained of severe pains radiating down the course of the great sciatic nerves and of cramps in the calves of the legs. For more than a week the patient required morphin or some other sedative every night. There was marked tenderness for four or five weeks. As in the other cases the mucous patches were not sensitive after the first day. The secondaries began to fade in two days and were practically gone in nine days. On the second day the congestion of the right eye rapidly increased and it was thought that an iritis was beginning but the condition quickly disappeared after the administration of atropin.

The fifth case was a male, aged nineteen, who was exposed about August 8, 1910, and about one month later developed a sore throat. The lesion in the throat was pronounced a primary chancre by Doctor Canfield of the Otolaryngologic clinic of the University Hospital. He received no treatment prior to admission. On November 5, he showed on examination a deep excoriating ulcer of the left tonsil with sharply defined, overhanging borders. The tonsil was large and indurated and the sub-maxillary and surrounding lymph glands of the affected side were enlarged. Wassermann reaction was positive.

November 9, patient received .65 gram "606" intragluteally. There was more or less pain and induration following but the patient was able to walk home on the seventh day. Fifteen hours after the injection the ulcer was distinctly shallower and it no longer had the crater-like appear-

ance due to the sharply defined projecting borders and the tonsil was much smaller in size. There was also less pain on swallowing. In twelve days the lesion was entirely healed.

The sixth case was a male student, aged twenty-four, who developed a chancre of the penis October 3, 1910. On October 22, he was given one grain of sodium cacodylate hyperdermatically and three days later two grains with no improvement in the lesion. November 10, he developed a macular rash over the body and had a positive Wassermann reaction. November 12, the patient received .4 gram of "606" intravenously according to Schreiber's method. This gave practically no local discomfort. The general reaction in this case, however, was more marked and came on more quickly than in the other cases treated. In two hours the patient had a severe chill and complained of headache and nausea. The patient vomited two or three times and had one diarrhetic stool and in six hours the temperature rose to 101.5° . There was a marked improvement in the primary noted on the second day, and it was entirely healed in thirteen days.

Six hours after the injection this patient showed a very marked increase in the already existing rash which became more intense and more extensive, covering the entire trunk and the extremities. This I regarded as the so-called Herxheimer reaction which has been observed in the cases treated with mercury, particularly where the doses have been small. The rash faded quickly, however, and was entirely gone in three or four days.

The last patient treated had no active lesions but had a positive serum reaction persisting after a prolonged course of mercurial medication. Ten weeks after the treatment the reaction was negative.

WASHTENAW COUNTY MEDICAL SOCIETY.

STATED MEETING, DECEMBER 31, 1910.

THE PRESIDENT, JAMES F. BREAKEY, M. D., IN THE CHAIR.

REPORTED BY JOHN WILLIAM KEATING, M. D., SECRETARY.

READING OF PAPERS.

SALVARSAN; THE METHODS OF ADMINISTRATION AND SOME OF ITS THERAPEUTIC ACTIONS.

DOCTOR H. ROCKWELL VARNEY, of Detroit, read a paper bearing this title. (See page 6.)

DISCUSSION.

DOCTOR MARK MARSHALL: I was glad to see that Doctor Varney looks upon the drug with a certain amount of pessimism. I think it is overrated. The few cases here were apparently cured as far as any existing lesions are concerned, but recurrences have been reported which means that it is not the ideal that it was first thought to be. However, to my mind the fine point about the drug is that it gives new means of attack. There are those whose spirochætes have become mercury-fast and who do not respond to mercury but are benefitted by "606." There are also those

who are intolerant to mercury but who can be relieved by "606." It therefore adds another valuable remedy to the list. Just at present the things that appear to me to be most important is the attitude to be adopted towards the drug in practice. The situation is somewhat unusual in the case of this drug. Patients will come to us asking to be given "606" and are willing to pay almost any price for it, for they have the idea that it is a sure cure. The question is what shall we tell the patients and to what extent shall we make use of it? We can only honestly tell them that we do not know whether they can be cured by the "606," and that it is probably best for them to continue mercury in addition.

DOCTOR FREDERICK G. NOVY: I cannot say anything from personal experience with salvarsan, but it strikes me that this subject affords an exceedingly interesting psychologic example. We have observed how the wave of enthusiasm has gone over the world, the people thinking that a specific had been found that would absolutely do its work by a single injection, and then gradually come various reports to the contrary. As Doctor Marshall has pointed out, there is quite a tendency on the part of the laity to insist and demand for the drug. I think there is always too much of a tendency to expect ideal and absolute results. Working in the laboratory, one soon comes to realize that a biologic problem is not necessarily met the same way in all cases. We must expect variations, and when it comes to treatment with one injection of a chemical substance, we must not expect to get absolute cures in all cases, or in ninety per cent or even in eighty per cent. I think fifty per cent would be a very good average. We may expect to find fifty per cent that will relapse. The future alone will tell just how large a percentage of syphilis cases are perfectly cured. We must remember that in the laboratory we use tremendous doses, as compared with the dose used for man, for we cannot afford the risk of killing the patient.

As to the changes that occur when this preparation is introduced into the body, we know but little. Important studies along this line have been made in connection with atoxyl, which is the original substance that led to the discovery of salvarsan. We may call attention to the fact that the use of atoxyl for the treatment of trypanosome diseases was suggested by Thomas. His work with this agent was afterwards taken up by German writers, notably by Koch, who employed it, though unsuccessfully, on a large scale for the treatment of sleeping sickness.

Atoxyl contains arsenic in the pentavalent form, in other words, it is a derivative of arsenic acid. In the body, this is presumably reduced to arsenious acid, otherwise it would be difficult to account for the action of the drug upon the organisms.

The interesting thing about these reduction products is their great activity in the test-tube. Atoxyl itself, when brought in contact with trypanosomes or spirochetes will not kill, but the reduced substance, even in a dilution of one to a million will kill the test organisms in a few minutes. Is this reduced arsenic compound the one that acts upon the organism in the body? Does it act directly, or in some other way? The French workers maintain that the reduced form acts upon the organism

through some combination with the specific proteid matter of the animal. At all events it was the study of the reduced atoxyl compounds which led to the discovery of salvarsan by Ehrlich.

I would simply emphasize that we should not be too sanguine in expecting perfect results from an agent. A relatively large percentage of cures is quite enough since we do not know all of the factors that come into play in the disease. Obviously, if the specific organism is free in the lymph or plasma it will be more readily acted upon than if it be intracellular or otherwise protected against the injurious agent.

DOCTOR FREDERICK R. WALDRON: Most of my cases have been those in which the spirochætes were demonstrated in the initial lesion and the treatment has been given at once and continued. They have been patients of more than ordinary intelligence and faithful with treatment. Most of them want salvarsan and I am unwilling to use it since it seems as though a small dose might decrease the chances of their being cured in the future. It seems that .6 grain injected intravenously is a small dose. In cases of refractory throat lesions I think it should be used and it seems as though it might prevent the spread and lessen the chances of the disease being transmitted to others in the various ways in which it is spread, for it certainly cleans these throats up very quickly. Doctor Edmunds suggested something interesting. Inadequate doses at this time may develop a strain of arsenic immune spirochætes which would destroy in future generations the effect of this drug. This has been done in the laboratories with other spirochætes. There are all kinds of interesting questions to be settled before we decide to inject in any individual case.

I think I am right in refusing salvarsan in cases which have given no trouble in the last two years. We may be able to prove that very much larger doses than we are now giving may be used with safety. In refractory mucous membrane and skin lesions and in very early chancres (in which the spirochæte is demonstrated) I believe the "606" should be given.

DOCTOR ALBION W. HEWLETT: Doctor Marshall's results corresponded very closely to the pictures shown by Doctor Varney. The rapidity with which the lesions disappeared was most striking. I would like to ask Doctor Varney about the contraindications for the drug. Although we gave rather large doses I was rather impressed with the lack of danger and it appeared to me that it would be possible to give much larger doses than were administered.

DOCTOR DAVID M. COWIE: Personally I have had little opportunity to watch the action of salvarsan although I have followed its history carefully and with much interest. I should like to ask Doctor Novy whether the very successful results in treating relapsing fever with salvarsan might not be due to the fact that the spirillæ of this disease are found in the blood stream and not as intracellular organisms.

Doctor Novy: I believe this is the case.

DOCTOR WILLIAM F. BREAKEY: I am glad to have heard Doctor Varney's paper. So much has been said about the subject from all points

of view that there is little left to be said. There are two or three things that ought to be mentioned. I want to emphasize that syphilis is a curable disease. I believe it as confidently as I believe many other things in medicine. I have found that syphilis is the most manageable of all the cases that come under dermatology. Next, it seems to me that we overlook a few pertinent foundational facts. Many cases of primary syphilis heal spontaneously, without any treatment (and more would if given opportunity), and are followed by few or no secondary lesions. The patient goes on without any further care and is surprised any time within one to fifteen years to have late lesions, gumma, ulcers, paralysis, et cetera. Where the primary lesion is healed with or without treatment, the doctor who attends such a case and stops there, unless he has had much experience, may think he has cured syphilis, whereas he has not. If the patient is taking salvarsan during this time and all the primary lesions disappear, then the administrator of the medicine may think he has cured that case, but if it is not followed up, it is a question whether it will be cured under any treatment. Of course, as Doctor Novy has said, if we get any per cent better than before, it is a great thing, but the danger lies in the indiscriminate use and later neglect, the over-confidence, like the x-ray. A safe initial dose of arsenic is .01 grain, and there is nearly three grains administered at a dose.

In olden times if we wanted arsenic we would use Donovan's solution—mercury, arsenic, and iodine—which is a most excellent preparation in chronic cases. We must hold still to the idea that it is not the deluge that washes out saturated infection or that improves the soil, but the gentle and persistent rain.

While I am glad to see every improvement, I would not discard old and tried methods. In this connection we have some statistics gathered by Captain Nichols of the United States Army, Doctors Fordyce and Fox of New York, Schambers of Philadelphia, Corlett of Cleveland, and hundreds of others in Europe and in this country, but the most enthusiastic, as Ehrlich himself, are conservative and cautious. Time enough has not elapsed to tell whether some of these remarkable cures will hold. And syphilis is so often complicated with other disease that no single method of treatment can be relied on. But it will be conceded with all the need for caution that salvarsan is one of the most valuable contributions to the treatment of syphilis yet discovered.

DOCTOR JAMES F. BREakey: The subject has been very clearly covered. In Doctor Marshall's cases I remember one of our patients in particular that did not clear up miraculously. The results in that case were little if any more rapid than one ought expect in a similar case with the old treatment. The results are satisfactory in a way, but nothing remarkable. I saw two of Doctor Waldron's cases. One of them was of ordinary physique, and manifested absolutely no reaction, no temperature, and no toxic symptoms. The other was unusually well developed, heavy and well muscled. He had a marked reaction in a short time, with quite marked toxic symptoms. Such cases would make one hesitate before increasing the dose very markedly. If a man of that kind will give a

marked reaction with .6 of a gram are we going to increase the dose with any degree of safety, and do it indiscriminately? How shall we differentiate between patients when the weaker of the two shows no reaction, while the stronger reacts markedly to the same dose? It seems that experimentation with increasing doses must be slow, and the patient should be warned before any such attempt is made.

DOCTOR FREDERICK R. WALDRON: In the two cases Doctor Breakey speaks of there was a rather curious history. In the man of ordinary physique, the chancre had been cauterized repeatedly and I could not demonstrate spirochaetes from it or in the fluid withdrawn from a gland in the groin. Later he developed throat lesions in which spirochaetes were demonstrated in abundance after a very typical rash. He was given 0.6 gramme "606" and after a very slight reaction his throat healed at once. In the heavy, well-muscled man I could not demonstrate the organisms, but was confident enough of the diagnosis to excise the chancre, which Doctor Warthin pronounced histologically syphilitic. The man was put on inunctions for two months and then given "606." He gave a very marked reaction, in spite of never having had a symptom outside the original sore, which was excised.

DOCTOR VARNEY (closing the discussion): I am very much pleased with the general discussion. There are a few things brought out in the discussion that I think are of especial interest. I mentioned perhaps one of the most crucial tests of the therapeutic value of salvarsan in the administration of the drug early in the infection, thereby attempting to prevent the secondary symptoms and general infection, which it fails to do in all cases. Doctor Novy has explained why it fails in a small percentage of cases quite to our satisfaction. The reason of its inefficiency and inability to prevent general infection is that the drug is unable to reach the organism, either because of the organism being intracellular or walled off in the pathologic condition of the gumma and of the chancre area. I firmly agree with Doctor Vaughan on the curability of this disease if vigorous early treatment be given. Whichever drug we select, arsenic or mercury, in attacking the organism it should be most vigorous from the very first dose. It is, I believe, almost criminal to commence the treatment of active syphilis or syphilis in the early stages by the average common dose of mercury administered by the mouth. In regard to the contraindications, and especially those of nerve degenerations, I have carefully excluded, as requested by Ehrlich, any extensive atrophied condition of the nervous system. Especial attention has been given to the optic nerve atrophy because of our experience with atoxyl. It is hard to select any series of cases without having some involvement of the nerves in some varying degree. It is being administered successfully of course in the hopeless cases, and is, in a measure, licensed to be used when it is the only agent that offers any hope in this class of cases. In one case of circulatory brain syphilis personally observed, the patient had recently been an inmate of an institution, was absolutely helpless, apprehensive, unable to answer any questions or in any way care for himself. He received but one dose of .3 gram and is now carrying on his business in a successful

manner. In one other case of cord syphilis, with almost continuous pain, after the second dose the patient has been so far free from pain and carrying on his daily work. The situation in regard to the efficacy of the drug is at present in a very unsettled state. Whether to increase the dose or to administer two or more doses within a short space of time is yet to be determined, as well as many other important things pertaining to its preparation and mode of administration. It is without question a wonderful advancement and is destined to be of more positive value in stamping out the scourge of centuries. May unspeakable honor be given to Professors Ehrlich and Hata for this wonderful discovery.

EDITORIAL COMMENT.

THE WAYNE COUNTY MEDICAL SOCIETY HOME.

THE opening of the new home of the Wayne County Medical Society which formally took place at a reception, given March 22, by the Presidents and ex-Presidents of the Society, marks a history in the era of the Wayne Society. The home, located at 33 High street east, within half a block of Woodward avenue, is centrally situated just on the outskirts of the business center of the city and convenient to the car lines. It was formerly the home of Marvin Preston, and was at one time one of the handsomest residences in the city. The architecture is dignified, the interior arrangement admirably adapted to club purposes and the rooms are beautifully decorated.

For several years the acquisition of a home has been a live question with the Wayne Society and several futile attempts were made to launch a plan looking toward this end. It remained for Doctor Arthur D. Holmes, President of the Society in 1909 and 1910, to evolve a practical scheme and to carry it through to fruition. Too much praise cannot be given Doctor Holmes for the persistent and successful effort which he made, in the face of many discouragements, and the new home will remain a monument to his genius and industry. The success with which the plan was carried through demonstrated that the members of the society were ready to support such a movement, but it required a leader with sufficient persistence and enthusiasm to accomplish the result.

It will not be out of place to record here the events which led up to the purchase of this magnificent home and library, for in the years to come these events will form an important part of the medical history of Detroit and Michigan. They should therefore be accessible to the historian of the future.

For several years after the reorganization of the Wayne County Society in 1902, the meetings were held in a hall in the Stevens Building, Washington and Grand River avenues. When those quarters had to be relinquished, it was deemed wise by the Board of Directors to accept an offer made by the County Auditors and meet in the County Building.

Here the society met from 1905 to 1910. While the programs were good and the attendance fair, there was lacking that feeling of solidarity which should characterize every society, and there were few opportunities for social intercourse and for the development of the *esprit de corps* which are such important factors in the success of medical societies. All recognized the lethargic state of the organization, yet until the advent of Doctor Holmes, no one was willing to give the time and the energy to lift the society out of the slough in which it was stagnating.

Early in Doctor Holmes' term he formed a "cabinet" of the more progressive members and plans were laid for a systematic canvass of the profession for subscriptions. However, many discouragements were encountered. Finally, in February, 1910, Doctor Holmes called together at his home—on two different evenings—those who were most interested and the wave of enthusiasm which swept the meetings resulted in the starting of a subscription list aggregating nearly ten thousand dollars. Subscriptions were received on the basis of quarterly payments extending over a period of five years. Those who first subscribed were then assigned three members to solicit and the subscription list grew until it totaled approximately forty thousand dollars. It must, in truth, be said, however, that Doctor Holmes did a very large share of this work and was busy in season and out of season on his longed-for project. During the summer, the Preston homestead was purchased and with some repairs and slight alterations was ready for the society in the fall.

The library which is an important feature of the plan has grown phenomenally. As a nucleus around which to build, the Board of Library Commissioners of Detroit gave to the society the three thousand five hundred medical volumes in the city library. Many of these books belonged originally to the Detroit Medical and Library Association and were put into the city library building about 1902. Included are a number of valuable sets of periodicals, such as the *London Lancet*, *American Journal of the Medical Sciences*, *Boston Medical and Surgical Journal*, *Medical Record*, et cetera. Acquisitions have been made from various sources so that at present the library numbers about seven thousand nonduplicates.

The house is splendidly adapted for club purposes and excellent meals may be obtained in the dining room. At present the meetings of the society are held in the double parlors of the house which will seat about one hundred and twenty-five. It is the plan to ultimately construct an auditorium with book stacks above it, on the rear of the property.

The home of the Wayne Society is unique. There are finer medical library buildings, but no other society has the combination of club and library worked out to such perfection. Since meetings have been held there the attendance has increased fifty per cent and the feeling of good fellowship pervades the whole membership.

Members of other county societies are eligible for associate membership and are invited to send in their applications. Physicians visiting the city are also invited to make the Wayne County Society Home their headquarters.

B. R. S.

CONTEMPORARY.

THE ETHICS OF FETICIDE.

[AUSTIN O'MALLEY, M.D., PH.D., LL.D., IN THE ECCLESIASTICAL REVIEW.]

THE subject for practical discussion is reducible to this question: Is it ever justifiable to remove from the maternal pelvic cavity a living but not viable fetus? A fetus six months old is not viable; one seven months old sometimes is saved by expert care, and such a fetus is technically called viable, although its chances for life are very few.

At the outset it is well to insist upon the fact that the question has only an indirect connection with religion as such. Some physicians are under the erroneous opinion that the prohibition of abortion is a regulation emanating from ecclesiastical authority, like the prescription of a liturgical procedure. The question, however, is older than the visible Church. It is a matter of the natural law altogether, of pure reason, prescinding from creed.

The question is also very practical, because there are many physical conditions in pregnancy wherein the premature removal of a living fetus is apparently the sole means of saving a woman's life, and commonly this fetus is not viable. This condition may exist in ectopic gestation, in some cases where a degenerating fibroid tumor of the womb complicates pregnancy, in diseases of the maternal heart where compensation has failed, in certain degrees of purulent nephritis, in some forms of eclampsia, in pernicious vomiting, and in premature separation of the placenta causing intrauterine hemorrhage. Again, in cases where the maternal pelvis is too narrow for natural delivery some physicians think they are justified in performing embryotomy or craniotomy. Besides these conditions, there is the ordinary criminal abortion, where the fetus is artificially removed to prevent maternal disgrace or inconvenience.

Before discussing any phase of feticide we should settle as far as possible just when the fetus becomes a living human being. If human life begins only after some weeks of embryological development, then, evidently there would be no question of right or morality in destroying such an embryo before it takes on humanity.

Human life in its fulness is simultaneously a cognitive, sensitive, and vegetative activity; and the ultimate source of this activity is the vital principle, acting in a proper medium, the body, at any stage of the body's development.

The vegetative principle in man is a special force or energy superior to the chemical and mechanical properties of matter. In the first place, such life in man has its origin only from preexistent life, *omne vivum e vivo*. The vegetative life, in nutrition, growth, conservation, and decay, differs from inert matter. Man's vegetative life starts with the fusion of the pronuclei of the germ cells, and from the beginning appropriates and adapts to its own use surrounding nutritive matter. It thus grows and divides into two distinct though connected cells. Each of these subdivides, and by a repe-

tition of the process the cells multiply, until from the inherent qualities, forces, or material, call it what you will, of the centrosomes in the pronuclei, the vegetative principle rapidly shapes a specialized embryo. From the germ-cells the vegetative principle makes its own organism, by nutritive assimilation; the maternal ovum and uterus are a mere residence.

Now, this vegetative principle which started to work at the very first cell-fission in the ovum, after the germ-nuclei fused, is evidently, as any amateur in embryology knows, identical with the principle found in the human being after birth, and unto the end of life, because the operations are exactly the same, and we can judge the nature of anything only from its operations.

Secondly, the ultimate principle of vegetative life is identical with the ultimate principle of sensitive life, and these two are identical with the ultimate rational principle. One and the same vital principle is simultaneously at the bottom of our cognitive, sensitive, and vegetative life, just as the same mind thinks, wills, and remembers. We have the testimony of consciousness that the same mind thinks and feels. This assertion is so evident that it needs no proof.

The vegetative life is also identical with the sensitive and rational ultimate principle. Organic and vegetative changes and sensations arise simultaneously; inhibit, exercise, or destroy a vegetative function and the result is simultaneous pain, pleasure, sensation, or death of the sensitive principle. Destroy the sensory apparatus or injure it and you correspondently destroy or injure the vegetative life, whilst acting on the sensory and intellectual life.

We are not always exercising the three phases of life, but they are always present. In sleep, or whilst under the influence of a narcotic, we vegetate solely; even when we are awake often we do little more; in our highest mental activity we vegetate and think, but do not feel. In the maternal uterus we vegetate solely, as we do when we are asleep; and in the womb we are the same human beings we are when we are asleep.

When we began to vegetate, our life began; we were human beings; we had a soul; and this as soon as the pronucleus of the spermatozoön fused with the pronucleus of the ovum, and made the first segmentation-nucleus. Before the first fission of that segmentation-nucleus was completed into two distinct cells the soul was present, for that fission was independent life; and any life is impossible without a soul, or, what is the same thing, a vital principle. Since, moreover, the soul with the body is the man, and the process of vegetation in our present state is identical with that first cell-fission, this splitting primordial cell is a human being. The active primordial cell in this stage is as much a complete phase of human life as are the body and soul of a person at puberty, or at adult age. Indeed, that cell with its vital principle at this stage of the process of human life is the only normal, possible condition of the human body beginning life. This splitting cell has an absolutely independent life; it is feeding itself from the ovum, as later it will feed itself from the placental blood, and later still from the maternal milk, and yet later with a knife

and fork. The ovum is only a necessary container, as the womb will be later; essential but extraneous.

If the soul is not present in this starting body, when does it enter? After, say, the seventy-sixth cell has been set into place? after the *primordial streak* has been laid down? By no means. The falling into line of the seventy-sixth cell, or of the third cell, is as much a vital process as the appearance of the beard, or of senile palsy.

We are to bear in mind then, that the human embryo in the womb, no matter how young it may be, is as much a child as the week-old babe; and, because it is a human being, it has all the rights of a human being to its life. The opinion formerly followed in the civil law that life begins with quickening is utterly unscientific and immoral. At quickening the child is four or five months old. In the human fetus three days old examined by Peters there were already thousands of cells in one cross-section, and millions in the whole embryo.

In any case, therefore, there is no period during pregnancy, capable of diagnosis as such, where we have not a new human life to deal with. This conclusion would be very evident if the entire development of the embryo is understood, but the description of the development is so technical that it is not advisable to attempt it here.¹

Granting, as we must, that the youngest human embryo is a living human individual, are there no conditions in which this new person may be at least indirectly deprived of its life in defense of the maternal life?

The ultimate necessary tendency of man is toward happiness, and, of course, happiness, or any other perfection, is impossible without existence; hence the instinctive recoil from the destruction of our life, which is the requisite condition of happiness. Even those that abnormally destroy their own life do so with horror for the destruction itself, and act thus unreasonably to escape evil, not to escape life; or they seek what they think will be a fuller life.

We can do no other injury to a man so great as the depriving him of his life, for that deprivation destroys every right and possession he has. He can recover from all other evil, or hold his soul above every other evil, but death is the absolute conqueror. No matter how debased or how diseased a man's body may be, no one may disassociate that body from its soul, except in defense of individual or social life under peculiarly abnormal conditions; but even such defense is permissible only whilst the man respects other human life and the social life; whilst he is innocent; has done no harm to society commensurate with the loss of his own life.

Existence, no matter how debased, is immeasurably better than non-existence, for nonexistence is nothing; and when we consider eternal life after the decay of the body, even as a probability that fact raises existence

¹*Fecundatio intra tubam Fallopianam normaliter accidit. Henle autem spermatozoon sese movere posse centimetrum tribus partibus horæ sexagesimis patefecit. Si ovulatio tempore mensium perficiatur, ovaque in tuba Fallopiana adsint, spermatozoa quindecim centimetra inter cervicem uteri et medium tubæ Fallopianæ tribus quartis horæ partibus pertransire possunt. Initium igitur vitæ novæ humanæ contingere potest hora unica post inseminationem. Spermatozoa autem in tuba Fallopiana quatuor hebdomadibus adventum ovorum expectantia vivere possunt.*

to infinite possibility above the void of nonexistence. A human life, even in an Australian Bushman, in a tuberculous pauper, in the vilest criminal, is in itself so stupendously noble a thing that the whole universe exists for its upholding toward betterment. The uplifting of human life to a better condition has been the sole tendency of all the magnificent charity, sacrifice, patriotism, and heroism, the best men and women of the world since time began have striven in. The necessary First Cause Itself is life, and life is by far the most sacred thing possible for this First Cause to effect.

It is not permissible, under any possible circumstances, *directly* to kill an innocent human being. By killing directly is meant, (1) either as an end desirable in itself, as when a man is killed for revenge; or, (2) as a means to an end. By an innocent human being is meant a person that has not by any voluntary act of his own done harm commensurate with the loss of his own life.

To kill a human being is to destroy human nature; to destroy anything is to subordinate and sacrifice that thing absolutely to the purposes of the slayer. But no one has a right so to subordinate another human being, because this other human being is a person, an intelligent nature, and consequently independent, free, referring rightfully its operations solely to itself as to their centre. This very freedom differentiates man from brutes and inanimate things. These are not free, not independent; they are rightfully possessed by man; but man may be possessed by no one. Even external human slavery is abhorrent to us as a corollary to the intrinsic freedom of man, which is absolute. This intrinsic freedom is such that we may not under any circumstances lawfully resign it to another's possession. All morality depends on that freedom, all civilization, and social life.

The end of all our struggles, toil, fortitude, temperance, is freedom. Freedom to do and to have a right to do and to hold, and freedom from the thralldom of vice and baseness. The rational endeavor of every civilized nation is that it be free; and this means that every citizen thereof from the highest to the lowest is made secure in his rights as a human being. It means that justice should prevail, if it really does not. Nearly all unhappiness, crime, moral misery, and by far most of the physical misery in the world are due to injustice. Give every man his bare rights as a man and all disputes of capital and labor, all race problems would cease, the prisons would be emptied, and war would be unknown. Our struggle toward justice must go on or anarchy and social destruction would ensue—hence the baseness in cynicism, and the selfish cowardice in the expression "What's the use?" As there is nothing greater and nobler than liberty, the freedom of the sons of God to do what they have a right to do, and as every human being has a right to that liberty, so there is nothing baser than its contrary, the destruction of that liberty; and no destruction is so final as that of killing the man, no usurpation so abhorrent to man or God as that annihilation of human nature. Abhorrence for such a death is the primal instinct of all living things.

Now, a fetus in the womb, as we have already shown, is as much a human being as a man fifty years of age, since it has a soul and body, and therefore is as free intrinsically; consequently, no other human being may

presume so to usurp the freedom, all the rights, of the fetus as to destroy it by killing it.

Justice, order, must finally prevail; this is the first law of the universe; all else is subordinate to that law. Justice, moreover, is a moral equation, and whenever one right transcends another it must be superior to the right it holds in abeyance. The right an innocent human being has to its life, however, is so great that no other human right can be superior to it, whilst he remains innocent; even the State may not kill directly an innocent man, although in certain grave conditions it may, to save itself, indirectly permit such a death; the individual also indirectly may permit such a death in another whilst striving to save his own life. However, even in defense of his own life against an unjust aggressor, so sacred and important is all human life, he may not destroy the unjust aggressor if wounding will suffice.

Morality is from the intention or volition; if I accidentally, unintentionally, stumble against a man, knock him into a river, and drown him, there is no question of morality; if I intentionally stumble against him with a like result, I am a murderer. There is no question of morality when an insane person kills a man, because the insane are not capable of volitional intention. An act from an intention to be good or permissible must, among other essential requisites, have this quality that it is proportionate to the end in view. Hence, if maiming an unjust aggressor is enough to save our threatened life, we may not kill him. This law, however, is not to be stretched to a sentimental extent. If there is a grave doubt about your ability to maim, you need not hesitate to kill in self-defense; still the law remains that human life even in an unjust aggressor is a very sacred thing. So great an authority in ethics as De Lugo, however, holds that we may directly kill an unjust aggressor; but he argues from the extreme value of the attacked life.

Means to any end may be good, bad, indifferent, or excusable. Excusable means are such as have an element of evil, but become justifiable by circumstances. Thoroughly bad means are never justifiable; an end in itself, however good, does not justify evil means. To succeed in a certain operation may be so important as to favorably affect one's whole life, and an act of perjury may be the means to insure success; but you may not perjure yourself, because perjury is essentially and always so gravely evil to society in general that no circumstance justifies it. Hence also you may not kill a human being that good may come of the deed.

The injury to social order which makes perjury so grievous an offense against morality is found in a higher degree in homicide. Murder of the individual is a direct attack on the ultimate end of all civil society, which is the protection of the individual in his rights. Murder with impunity makes society impossible, and a single murder of an innocent human being is an offense against the stability of society so great that nothing can condone it, nothing justify it—there is no question of self-defense in dealing with an innocent human being; self-defense supposes a *nocent* human being.

A further argument against the killing of the innocent is drawn from an analysis of the offense such a deed is to the First Cause; but this argu-

ment would take too much space in the developing. A man that needs any argument to keep him from homicide, believes vaguely if at all in the very existence of God; he knows nothing of the relation between Creator and creature, and so on.

It has been said above that indirect killing might under some conditions be excused. An effect is brought about indirectly when it is neither intended as an end for its own sake, nor chosen as a means toward an end, but is attached as a circumstance to the end or the means. The means help to the end; the circumstances here do not. For example, two swimmers, A and B, are trying to save C, who dies in the water, and, as he dies, C grips A and B so tightly that they cannot shake the corpse off. A is weak, and he will soon sink and drown, owing to this weakness and the weight of the corpse; B also will go down later owing to the weight of A and C. A, however, cuts his own clothing loose from the grip of the corpse, and is saved; but thus immediately B is drowned, owing to the fact that the full weight of the corpse comes upon him. Is A justified in cutting himself loose? Certainly he is. That is an example of indirect killing. A intends to save his own life by cutting himself loose from the corpse, C; he does not directly intend to kill B; he has great repugnance even to permitting the death of B; nor does he use the means (the cutting loose) to kill B, but to save himself. The killing of B is a circumstance attached to the means.

Suppose, again, the same condition of A, B, and C; but A is not able to cut himself loose. D, a fourth party, can cut A loose and save him, but can do no more; he must let B go down with the corpse of C. May D cut A loose? Certainly he may; and the incidental death of B is an indirect killing.

In a craniotomy on a living child, however, done to save a mother's life, the killing of the child is direct, not indirect. The removal of the child is solely a means to the end, which is to save the mother's life. The physician is not like D in the last example, cutting A, the mother, loose from C and B; he is D braining B to save A, whilst B has the same right to life as A.

Take another example: B is a swimmer disabled by cramps and about to drown; A, going to save B, is seized by B, and both will be drowned; D goes to help A and B. He cannot get B loose, and he finds he can save only one. May D knock B senseless to save A, bring in A and so leave B to drown? Certainly he may; but he is thus permitting the death of a materially unjust aggressor (of which, presently), a case altogether different from craniotomy, where the child is not an aggressor at all. D is saving A as if he were pushing away a maniac who was about to shoot A. The child in craniotomy is not doing anything at all; it is where the mother placed it, and it has a perfect right to its position and life.

In an abortion done to save a mother's life whilst the child is alive but not yet viable, the removal of the child is a means to the end, which is to save the mother's life. This removal is also a direct killing, not indirect.

In an ectopic gestation where the living but not viable fetus has ruptured the Fallopian tube, and the mother is in certain danger of death

from hemorrhage, if the surgeon ligates the torn vessels of the tube to save the mother's life, he by the same act shuts off the blood-supply of the fetus and leaves it to die, or rather slightly hastens its death. That would be an indirect killing, not a killing as an end or a means, but this indirection makes it altogether different from a craniotomy or abortion.

If in ectopic gestation the tube is yet unruptured, and the surgeon, *as a precaution*, ligates the vessels and removes the tube together with the living fetus, the killing of the fetus here, in the opinion of practical moralists, is a direct killing, as direct as an abortion; and the Church has forbidden such intervention. In an article I wrote in "Esays in Pastoral Medicine" (New York, 1906), I argued in favor of this surgical intervention; but my position is now untenable. Apparently also my tentative argument in that same book in favor of surgical intervention when a degenerating fibroid tumor of the uterus complicates pregnancy, is not "safe", because it was based on the same principles largely as my argument concerning ectopic gestation.

Craniotomy is never justifiable. It is first a direct killing by a private individual; secondly, apart from the morality of the action, craniotomy and embryotomy are very rarely indicated, owing to the possibility of substituting the Cesarean section. Sometimes an aftercoming head may be so jammed that it cannot be delivered even by Cesarean section: in such a case, if the surgeon waits a little while, the child will die, and thus remove the necessity of killing it. Even in septic cases where there is great danger in attempting Cesarean section, the case becomes like that wherein there is question of abortion in eclampsia.

A more practical question is that of the indication of abortion to save maternal life; and the solution of this question will include that concerning craniotomy. I suppose a condition where two or more competent physicians have come to the decision in a given case of pregnancy, where the fetus is not viable, that if the woman's womb is not emptied at once she will die, and if it is emptied she will very probably recover. If the womb is emptied, the fetus will be killed by the physician; if the womb is not emptied, both the mother and the fetus will almost certainly be killed by the disease—there is very little chance for the fetus in any event. The abortion often does little more than to hasten its death.

It is not, however, certain even in a bad case of eclampsia that the woman will die if she is not delivered at once. The maternal mortality is about twenty-eight per cent; the fetal mortality is from thirty-three to fifty per cent. Emptying the uterus reduces the maternal mortality to eleven per cent, but does not save every case. The fact that about seventy per cent of eclamptic women recover without emptying the uterus, evidently makes the condition different from what it would be if all eclamptic women were certainly doomed. Let us suppose, however, an extreme case where competent men have decided that a particular woman will surely die if her womb is not emptied, and she has a chance of recovery if it is emptied (no one can be certain that such a case will surely recover). At best she has eighty-nine chances in one hundred for recovery, since the mortality even after artificial abortion is still eleven per cent for all stages of pregnancy. When eclampsia occurs in early pregnancy, as is supposed in our case, the

disease is extremely fatal, even if the uterus is emptied. The abortion will surely kill the child, and it will probably save the mother. May the physician empty the uterus?

He certainly may not. To hasten even an inevitable death is homicide, and that quality of merely hastening adds nothing for extenuation: every murder is merely a hastening of inevitable death. To give a dying man a fatal dose of morphia "to put him out of misery," is as criminal a murder as to blow out his brains whilst he would be walking the streets in health; to ease pain is not commensurate, by any means, with taking a human life. This subversion of the moral or natural law for the sake of sentimentality is culpable ignorance, and always does grave damage to human society. Physicians are constantly mistaking inclination, or the mental vagaries of the women that influenced their childhood, for rules of moral conduct. A physician is not a public executioner, not a judge with the power of life and death: his business is solely to save life, not to destroy it.

I have already shown that murder as such is not permissible; but an objector says, in the case of the supposed abortion, you are opposing the life of a useless fetus to that of a useful mother of a family. If that objection were true—and it is not, because the real fact is that we are opposing one human life to another without the only sufficient reason—what has that to do with the matter? If there were anything in that argument, where would it stop? If it held for the taking of life in an unpleasant condition, it would hold *a fortiori* in every other less unpleasant condition where a life would not be at stake. You incur a legitimate debt, say, ten thousand dollars, and you give your note for the money. When the note falls due it is decidedly inconvenient to pay it, it would even bankrupt you to pay it. Does that let you out of the obligation under the moral law, or even the civil law? The eclamptic mother conceived the child, got into the difficulty, and she and her physician have no right to tear up the note, especially when such a tearing implies homicide. Suppose, again, a woman has done a deed for which she has in due process of just law been condemned to death; suppose also there is only one man available to put her to death, and if this man were killed she could escape. Would her physician be permitted to shoot that executioner to let her out of the difficulty? Certainly not. That, however, is what the physician does who empties an eclamptic uterus. You may not do essential evil that good may come of it, or that anything may come of it. This is not a case of indirectly permitting evil; it is a case of directly doing evil, and that evil is the destruction of a human life, one of the most heinous crimes possible; furthermore, this very destruction may be so futile as to fail of its end.

If I may kill a so-called "useless fetus" to save a useful mother, do gross evil to effect great good, why should I stop there? Why may I not rob a bank to make my children rich, murder a useless miser to employ his money in founding orphanages, reject all my most sacred promises whenever their observance makes me suffer? Where will the sentimental moralist draw a line? That the civil law may permit therapeutic abortion is no excuse whatever. The civil law permits many things which morality forbids; it takes no cognizance of evil thought unless its expression disturbs

peace; it absolves bankrupts even if they afterward become solvent; it permits the marriage of divorced persons, and so on indefinitely.

Suppose a lady, in every sense of the term, marries in good faith a man she deemed a gentleman, but who turns out to be a syphilitic sot, who disgraces her and makes her life a perpetual misery, immeasurably worse than the condition of any eclamptic woman. No greater blessing could come to her than his death. Would she therefore be justified before any tribunal of God or man in murdering him to get rid of her trouble? No; she must bear with her evil for the sake of social order. So must the eclamptic woman.

Nothing whatever justifies an individual, like a physician, in taking human life, except the defense of his own or another's life, against an unjust aggressor; and no fetus in the womb can possibly be an unjust aggressor. The ethical foundation for killing in self-defense is this: It is a primary law of nature that every human being should and will strive to resist destruction, and in certain conditions, which I shall explain, a man may kill another to preserve his own or another's existence. Justice, as was said before, requires a moral equation, and if the right prevails it must be superior to the right it supersedes. At the outset both the aggressor and the intended victim have equal rights to life, but the fact that the aggressor uses his own life for the destruction of a fellow man sets him in a condition of juridic inferiority with regard to the latter. The moral power of the aggressor is equal to his inborn right to life, *less* the unrighteous use he makes of it; whilst the moral power of the intended victim remains in its integrity, and has consequently a higher juridic value.

The right of self-defense is not annulled by the fact that the aggressor is irresponsible. The absence of knowledge saves him from moral guilt, but it does not alter the character of the act, considered objectively; it is yet an unjust aggression; and in the conflict, the life assailed has still a superior juridic value. In any case the right of killing in self-defense is not based on the ill-will of the aggressor, but on the illegitimate character of the aggression. An insane or other irresponsible aggressor is called a materially unjust aggressor; a sane aggressor is formally unjust.

A fetus in the womb of an eclamptic mother is not a formally unjust aggressor, nor is it even a materially unjust aggressor. The child has a natural right to be where it is; it did not put itself where it is—the mother put it there; its natural presence in the womb is not in any sense of the term an unjust aggression. If any one is an aggressor the mother is, but there is no question of killing her.

You object, the fetus is as *materially* unjust as the irresponsible lunatic who is about to attack me with a knife; I may kill this irresponsible lunatic; therefore I may kill the fetus. I deny the parity. The lunatic is an active aggressor, actually attacking my life; the fetus is altogether passive; it is attending solely to its own business of growing, not attacking anything. You cannot even prove that the fetus itself causes eclampsia; you know little about this disease except its symptoms, and the fact that it occurs in pregnancy. If eclampsia were caused by pregnancy solely, every pregnant

woman should be eclamptic. The pregnancy starts into action a pathologic diathesis, and the fetus may not be deprived of life for that fact.

But its life is no good—that is not true; it has a human life which is illimitably good; so much so that even the State cannot take such a life. All reputable physicians deem a fetus in a *normal* pregnancy so good that they will not dream of destroying this fetus. They absolutely refuse to effect an abortion merely to get rid of a fetus which may disgrace an unmarried woman and her family, and they are perfectly right in this refusal. The only reason they have for the refusal is that the disgrace of the woman is not commensurate with the destruction of a human life. Yet if the same woman were married and eclamptic they do not hesitate to destroy the fetus. This second position is illogical, because the mere natural death of the woman is no more commensurate with the killing of another human being than the disgrace of the unmarried woman. I repeat, nothing is commensurate with homicide, except an unjust aggression against life; and, once more, the fetus is utterly innocent of any aggression whatever. If it is murder to kill a child outside the womb, and mere therapeutics to kill it inside the womb, then it is murder to shoot a man on the street, and mere good marksmanship to shoot him to death inside his house, especially if he is an undesirable citizen.

Would it not be better that the fetus should be killed than that the mother should die? By no means. It might be better that the fetus should *die* rather than that the mother should die (apart from the question of baptism); but that is very different from killing the fetus. The first fact in the world is that justice, law, order, should be observed no matter what the cost; better that ten thousand mothers should die than that one fetus should be unjustly killed.

When ectopic gestation is considered, and some of the tumors that complicate pregnancy, conditions arise which differ in part from those in craniotomy and abortion, but it is impossible to discuss these in the space of a single article.

What is the conclusion from all this argumentation? What is the physician to do who meets a case that imperatively calls for abortion according to the common medical practice? The answer is clear enough: if he has any regard for the natural law, upon which all morality and all social order rest, he unfortunately can do nothing; if he has no regard for this law, he will kill the fetus. The law seems to be hard, but nearly all law is hard to the loser; yet that fact does not abrogate the law, nor make it bad.

Life is too cheap with us in America, and the physician should be the first, with the clergyman and lawyer, to place safeguards about it; not seek to destroy it. We are by far the most homicidal nation on the face of the earth. We have committed eight thousand, eight hundred and thirteen murders annually for the past twelve years; we have in that time murdered one hundred and twelve thousand, eight hundred and ninety-two human beings, or two thousand, eight hundred and twelve more than all the men lost in battle and by wounds in the Federal armies throughout our Civil War. We killed one human being every sixty minutes of the

day and night during the past twelve years, and we are growing worse, not better. We annually murder more human beings than do Italy, Austria, Germany, France, Belgium, England, Ireland, Scotland, Wales, Holland, Hungary, and Spain, put together. Northwestern Europe would require one thousand million inhabitants to raise its present murder-rate up to ours; and all this excludes the slaughter by the professional abortionists and the preventable homicides of commerce and the Fourth of July—last Fourth of July we killed two hundred and seventeen children. It is estimated that there are one hundred thousand abortions in the State of New York alone in a single year; but I do not know the value of this estimate. We have three times the number of inhabitants that England and Wales have, and from twenty-seven to thirty times the number of annual murders. Our lynchings run as high as two hundred and forty-one in a single year, and in England, Ireland, and Scotland together there has not been a single lynching for the past seventy-five years. For the past twenty years our lynchings have exceeded the legal executions. In 1908 there were two hundred and fifty-seven murders in Chicago and Saint Louis, yet only *two* of the murderers were executed. For the past twenty-one years in the State of New York out of every five hundred murderers five were executed, ninety were sent to prison, and four hundred and five were let go scot-free. If you kill a quail in the United States out of season, you will get into trouble; if you kill a man, you will only get your picture in the yellow journals. We are the Cain of the human family, drenched with our brother's blood, a stench in the nostrils of God, but we boast like Apaches of our "glorious Republic." It is high time for a change, and we may as well begin with the physicians who practice abortion as with any other class of murderers—before the patience of God gives out.

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RECENT PUBLICATIONS.

REVIEWS.

THE PROPHYLAXIS AND TREATMENT OF INTERNAL DISEASES.*

It is a pleasure to note the appearance of a new edition of Doctor Forchheimer's very excellent book on therapeutics. The present volume has been revised in accordance with the last edition of the "United States Dispensatory." Specific treatment with sera and vaccination has received careful consideration, new drugs have been added, and many chapters rewritten or added. The author has been guided partly by his extensive experience and partly by a critical sifting of the literature. The drugs recommended are well selected and relatively few; and a mean is chosen between therapeutic nihilism on the one hand and an uncritical summary

of the literature on the other. Special attention is given to prophylaxis and to individual hygiene. Altogether the book may be regarded as one of the best that we have on this difficult subject. A. W. H.

*By F. Forchheimer, M. D., Professor of Medicine in the Medical College of Ohio, Department of Medicine of the University of Cincinnati, et cetera. Second edition. New York and London: D. Appleton & Company.

URGENT SURGERY.*

THE first volume of this set was reviewed several months ago. Volume II comprises four sections treating respectively of the genitourinary organs, the rectum and anus, the strangulated herniæ and the extremities.

The first section begins with colpotomy, considers urgent surgery of the uterus, vagina, vulva, kidney, bladder, urethra, penis, scrotum and spermatic cord and ends with abscess of the prostate. The second deals with imperforations, wounds and foreign bodies in the rectum, prolapse and abscesses of the anus and rectum. The third section of this volume treats of inguinal, femoral, umbilical and the rare strangulated herniæ. The last section discourses upon dislocations, fractures, injuries, amputations, wounds and infections, ending with anthrax.

Like its companion this volume teems with the practical, those conditions being considered urgent which, in the light of modern surgery, indicate prompt measures.

In this volume are ten full page plates and a profusion of drawings and photographs. With all the surgical works of recent years there would hardly seem to be room for another, but this work is one to be enthusiastic ever on account of its concise, plain, and practical character. F. B. W.

*By Felix Lejars. Translated from the sixth French edition by William S. Dickie. William Wood & Company, New York.

OBESITY AND GOUT: INANITION AND FATTENING CURES.*

It is a pleasure to note the appearance of the most recent in the series of little books dealing with the pathology and therapy of disorders of metabolism and nutrition by Professor von Noorden. In these he reviews some of the subjects dealt with in earlier books of the series and he also introduces much new material concerning obesity, gout, and reduction cures. The author is one of the most prominent of that group of German clinicians who have applied the recent advances of physiologic chemistry to the problems of the bedside. The discussion, while thoroughly scientific, aims to present practical methods for treating obesity, gout, and inanition. The arrangement of the material is simple and the style very readable. The perusal of these books indicates how far our knowledge of metabolic disorders has been advanced by scientific studies and gives to the student fundamental principles which will permit him to vary his treatment to suit the individual patient. They can be highly recommended to those interested in these diseases. A. W. H.

*Two books by Doctor Carl von Noorden, Professor of the First Medical Clinic, Vienna. Authorized American edition. Edited and translated under the supervision of Alfred C. Croftan, M. D., Chicago. New York: E. B. Treat & Company.

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ORIGINAL ARTICLES.

MEMOIRS.

SOME OBSERVATIONS ON KORSAKOFF'S SYNDROME.*

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FOR a long time past, in chronic alcoholics, mental changes associated in some degree with a polyneuritis have been noted. Korsakoff gave the first accurate description of these mental changes and contended that the syndrome described by him constituted a separate and distinct disease process. Since then the literature has grown to enormous proportions and is in some sense quite confusing. Cases are described presenting the syndrome in which the subjects had never taken alcohol and for a period it was recognized that practically any toxic agent capable of producing a polyneuritis was also capable of producing the mental symptoms of Korsakoff. Latterly it seems, however, that the tendency is to restrict the term to some uncured cases of chronic alcoholism of a peculiar type, and a diagnosable polyneuritis seems not always a necessary precedent. Indeed in the work of some excellent observers one notes a tendency to regard the condition simply as one of the unfortunate termini of delirium tremens.

If there be any value at all in the psychologic grouping and diagnosis of mental disease this is rather unfortunate since it leaves no place to group those cases presenting loss of orientation, falsification of memory and fabrication, arising in the course of chronic morphinism, pernicious anemia, arsenical poisoning and influenza in a way to give a clear idea of the mental element. It is, however, not our object to touch on this but to deal merely with some observations covering the onset and course of certain types of the disease.

*Read before the Detroit Society of Neurology and Psychiatry.

In our experience Korsakoff's syndrome has arisen in three ways:—

- (1) Slowly and with a mild onset following a distinct polyneuritis.
- (2) Insidiously and without a diagnosable neuritis or delirium.
- (3) Rapidly with a severe delirium resembling delirium tremens.

In the first two of these methods of onset present no difficulties of diagnosis. The picture is usually clear and distinct and the condition resembles nothing else. The latter, in its early stages, however, in the absence of polyneuritic symptoms, is often confusing and frequently indistinguishable from other types of alcoholic delirium. This distinction is valuable from the standpoint of prognosis since it proves distinctly embarrassing to prognose the short term and self-limited delirium tremens and discover that the condition eventually requires the commitment of the patient to the hospital for the insane.

The observations here cover only those cases with the acute delirious onset and who have been under observation long enough to prove their disorientation, fabrication and defects of memory, that they belong to the Korsakoff group.

Heredity.—Every one of our cases shows some heredity in greater or less degree. This is practically always a near-heredity and appears vastly more often on the maternal rather than the paternal side. It is an heredity of distinct mental disease and does not often refer to the major neuroses or to alcoholism or syphilis. Defective brothers or sisters are not uncommon but are apt to show lack of mental development in some degree rather than distinct psychoses.

Physical Stigmata.—These are not prominent, indeed the majority under observation presented none of significance.

Physiologic Stigmata.—On the other hand these are prominent. Nearly every case gave some history of defective powers of endurance and of being easily affected by the slighter infections and minor matters. In not a few the lack of resistance to alcohol was really remarkable. One man, a morphinist, had taken on good authority, less than a quart of whisky in his entire life and had not touched a drop for five years until the second week before his admission to the hospital. According to his statement: "It makes me crazy." Another, a woman with a parasthesia interpreted by her as an affliction of vermin and which finally led her to eternally clean her house and eventually set fire to it, had used less than a pint of whisky weekly for five months. Still another man, also a morphinist, who had been on but two alcoholic sprees in his lifetime and those over two years before had run through five months of delirium and was becoming much quieter. He suddenly snatched a glass of whisky from the tray of a passing nurse, drank it, and two days later began a delirium which was an almost exact replica of the initial attack.

Sex.—The vast majority of the victims of Korsakoff's syndrome appear to be female but the figures covering the acutely delirious onset show male domination. Our own series show seven males to five females in this class.

Occupation.—Saloon-keepers came first, then house-keepers, then lawyers and physicians. In no case have we seen the syndrome arise in indi-

viduals who performed hard manual labor or who spent much time in the open air.

Age.—Our observations seem to show that the acute delirious onset occurs only in the middle periods of life. Our youngest patient was thirty-six at the time of onset and the eldest fifty-two. The average was forty-one.

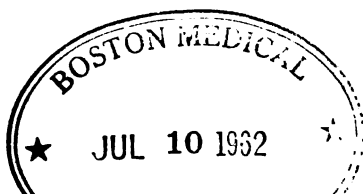
Onset.—The onset of the delirium in our experience has been sudden. A careful inquiry for prodromal symptoms discloses a change in disposition and character for an average of two years previous to the delirium. These changes have consisted of intolerance of others, increased selfishness, and, par excellence, of periods of unreasoning irritability coming on spasmodically and lasting for weeks. Complaints of muscular "rheumatics" have in two instances led the patient to sojourn in Mount Clemens for treatment but in no instance has a frank polyneuritis been diagnosed. A rather severe degree of simple anemia was noted in several but had not resulted in alarm to the patient.

Hallucinatory Period.—Contrary to the accepted rule the initial hallucination in our series seems to be one of sight and of that type closely related to illusion. People are seen behind bushes, faces flash by doors and windows; others turn corners quickly so that their presence is but half apprehended. Unlike delirium tremens these do not seem to inspire great fear nor amusement but simple anxiety. Shortly after hallucinations of hearing appear and apparently are loud, very distinct and consecutive. A definite plan is usually laid and the patient instead of submitting in craven cowardice as in delirium tremens, rebels and makes plans to revenge himself upon his tormentors. He does not distinguish between the real voices of the physician or nurse and the hallucinatory experience and usually plumes himself on his ability to see through the schemes of his tormentors. His attention is usually active; there are not the fantastic dream states and our experience has not shown us an example of the quickly passing, picture-like delirium with psychomotor acceleration so common in delirium tremens.

Sleep.—Perhaps the best distinguishing point between the delirium of Korsakoff's disease and delirium tremens is the ability to sleep in the former. It is remarkable how some of the acutely anxious and hallucinated subjects in our series would drop off into a dreamless slumber of six to eight hours and then awakening, would take up the hallucinatory process where they left it off. Sleep of such duration coming in delirium tremens practically always means a crisis and the end of the disease.

Tremor.—Next to the power of sleep perhaps the best distinguishing point between delirium tremens and Korsakoff's disease that has come in our series has been the lack of tremor in the latter. True enough there are stages in delirium tremens when the tongue is dry, the pulse full and the dream states marked. There is absence of the tremor for hours on end but our observations cover no case in which there was tremor at any time.

Vasomotor Symptoms.—In our series there has been noted at no time



the rapid thready pulse and profuse perspiration that accompanies crisis and collapse in delirium tremens.

To sum up: An insane heredity, quiet and easy going disposition, ease of affection by alcohol, a sedentary life, a history of change in temperament with the sudden onset of delirium of vivid type in which the patient sleeps well and has no tremor or visible signs of acute alcoholism,—speak for Korsakoff's disease even in the absence of signs of polyneuritis.

The future of the victim of Korsakoff's disease is not a bright one and it is perhaps justly thought that the victim is never restored by complete recovery. Changes in the whole personality are constantly noted but it does not follow that the new personality is any less valuable than the old. Of the series considered here four now live outside the hospital in comfort and fill their former positions in life. One, a physician, has for six years been able to attend to his practice and, though morose, irritable and forgetful, seems not the less competent. His neighbors note the marked change in him, but attribute it to the loss of his daughter which occurred just previous to his admission to the hospital. They regard him as normal. Perhaps he is, but his present personality is a new one. Another while childish and forgetful, is a much better housekeeper than she was and has lost her desire to cultivate old and undesirable acquaintances. This is through no awakening of moral sense. She has simply forgotten much of her life and looks on the present through an altogether different personality. The third successfully conducts a former business but the differences in personality are noted easily by friends who recognize a strange, but successful personality, in an old body. The fourth is likewise changed from a quiet, soft-spoken, good-hearted "good fellow" to a truculent boaster who makes things move by the force of his new personality.

Here we would like to introduce a series of four patients who have never had neuritis nor delirium but who are old alcoholics; one periodic and three continuous users. All were easily affected; a slight excess producing a marked reaction. All suddenly quit the use of the poison but without a particle of suffering from abstinence. All have remained free and pride themselves upon their great will power. None of them quit from altruistic motives: they had simply reached the so-called "alcohol climacteric."

The disposition of each of these has changed. They are no longer self-pitying. They are all irritable and intolerant, especially so of any present-day user of alcohol. They all have thrown themselves heart and soul into their business but only one has succeeded any better than when they were dividing their attention between business and alcohol. There is quite a similarity between their changes of personality and those of the partially recovered cases in the last series and it seems not too far-fetched to regard these men as abstinent through the influence of an abortive form of Korsakoff's disease. In their cases it is apparently not an unmitigated evil.

EULOGY ON THEOPHILUS PARVIN, A. M., M. D., LL. D.

WILLIAM LANE LOWDER, B. S., M. D.

TIPTON, INDIANA.

INTRODUCTION.

"The wise physician, skilled to heal,
Is more than armies to the public weal."

WHEN God walked with *man* in the Garden of Eden; then and there he was taught unbounded love and due reverence for all things created, and holy reverence for the Being who created them. Purity and holiness were the attributes of the mind. As the blood coursed along his veins, untainted by disease, so thought traversed the mind and moved the soul; unpoisoned by the touch of evil. As the earth poured forth her treasures unbidden, for his corporeal nature, so heaven, through ministering angels, supplied, direct, his spiritual aliment. Man walked forth in the image of his maker—perfect in form, in feature, and in mind. There was harmony in all things—the carol of the bird, the plash of the waterfall, the roar of the lion, the bleat of the lamb. The softest zephyrs stirred the forest leaves, and the moonbeam was unbroken, as it rested on the streamlet. Beauteous and glad some was the face of nature—all things were subjected to the dominion of man's will—all made subservient to his interests and his enjoyment. He felt no physical pain—he suffered no mental anguish; the burning heat and the biting cold—the excitement of hope and the bitterness of despair, were alike unknown to him. A created being, he held converse with his God. Yet he felt a void within—a want unsupplied—human sympathy yearned after human sympathy. "It is not good for man to be alone!" This is a divine injunction. So a helpmeet was provided—the family relations were established; and thus was foreshadowed, what, to the end of time, is to be a necessity of humanity.

"Heaven responds to man as quickly;
As shadow to form, or echo to voice."

The world grew older and sons and daughters become its denizens. The wing of the evil one had overshadowed the *pure* and *perfect* one. The carol of the bird is hushed by the snare of the fowler. The lion no longer crouches at the feet of his master. The thunder of God's wrath had been heard crushing amid the forest trees and the lightning of his eye had withered the tall cedars. The heart of man had been a volcano of passions, which ever and anon burst forth in devastating fury. Ambition looked forth for a field to play her part in, and, "the hand of man had been raised against his brother." How changed—how changed the face of nature, once so beauteous and glad some! The trail of the serpent has left its mark upon all things created; yet, still men cling together, as those, who have a community of interest and feeling. Patriarch and people, chieftain and tribe, are one and undivided. They feel pressing upon them, as with an iron hand, "a necessity of humanity," a

"Love for sickness and for health,
For rapture and for tears;
That will live for us, and bear with us
Through all our mortal years."

Father Time is ever noiselessly and silently turning over his pages. We are too much engrossed by the fancy and story of the present to think of the characters and anecdotes that gave interest to the past; and each succeeding age is a volume to be thrown aside and speedily forgotten. The idol of today pushes the hero of yesterday out of our recollection; and will in turn, be supplanted by his successor of tomorrow. "Our fathers," says Sir Thomas Browne, "find their graves in our short memories, and sadly tell us how we may be buried in our own survivors." The emptiness of renown and the certainty of oblivion! How *idle a boast*, after all, is the *immortality* of a *name*! History fades into fable; fact becomes clouded with doubt and controversy; the inscription moulders from the tablet; the statue falls from the pedestal. Columns, arches, pyramids—what are they, but heaps of sand, and their epitaphs but characters written in the dust?

"Imperious Caesar dead and turned to clay,
May stop a hole to keep the Winter's flaw away."

Thus, the Bard of Avon expressed the same melancholly thought. We are assured, however, by the immortal Tennyson:

"That nothing walks with aimless feet,
That not one life shall be destroyed;
Or cast as rubbish to the void,
When God has made the pile complete."

Another poet gives expression in the following beautiful lines:

"The good, the brave, the beautiful,
How dreamless is their sleep,
Where rolls the 'dirge-like music
Of the ever-tossing deep!
Or where the surging night-winds
Pale Winter's robes have spread
Above the narrow palaces,
In the cities of the dead!"

The remains of Alexander the Great have been scattered to the "four winds," and his empty sarcophagus is now the mere idle curiosity of a museum. The Egyptian mummies, which Cambyzes or Time hath spared, avarice now consumeth; "Mizraim cures wounds, and Pharoah is sold for balsams." How truly may we exclaim with the poet:

"Man's feeble race, what ills await!
Labor, and penury, the racks of pain,
Disease, and sorrow's weeping train,
And Death: sad refuge from the storms of Fate!"—THOMAS GRAY.

Sir Thomas Browne, in his "Religio-Medici," says: "I believe that our estranged and divided ashes shall unite again; that our separated dust, after so many pilgrimages and transformations into the parts of minerals,

plants, animals, and elements, shall at the voice of God return into their primitive shapes and join again to make up their primary and predestinate forms." Continuing, he says: "At my death I mean to take a total adieu of the world, not caring for a monument, history, or epitaph, not so much as the bare memory of my name to be found anywhere, but in the universal register of God." "In these moral acceptations the way to be immortal is to die daily. Nor can I think I have the true theory of death when I contemplate a skull, or behold a skeleton, with those vulgar imaginations it casts on us." This eminent English physician and writer was born in London in 1605. Settled in Norwich, where he practiced for many years. In 1642 he published anonymously his "Religio-Medici," which was very successful and has often been reprinted and translated. A rare genius of superior merit was exhibited in Sir Thomas Browne. His mind was fertile and ingenious, his analogies original and brilliant; and his learning so much out of the beaten track that it gives a peculiar and uncommon air to all his writings. He was knighted in 1671, and passed away on his seventy-seventh birthday, 1682. Sir Thomas Browne justly merits the following tribute:

"Say, did these fingers delve the mine,
Or with its envied rubies shine?
To hew the rock or wear the gem
Can little now avail to them;
But if the page of truth they sought,
Or comfort to the mourner brought,
These hands a richer meed shall claim
Than all that wait on wealth or fame."

—ROBERT PHILIP (one of his countrymen.)

The selection of the "masters in medicine"—a typical selection—is by no means an easy task; for in the splendid "galaxy" of our American physicians and surgeons, there are unnumbered stars:

"They all are fires, and every one doth shine."

In the embarrassment of riches, this principle has been adopted that the characters chosen shall not only be of the first rank, but, that as far as possible, they represent epochs of medicine and contributions to its archives. Under the guidance of this rule "five masters" will be, each in turn brought together. They all belong to the *dii majores*, and sit serenely, each in his chair, on the topmost peaks of Olympus.

The first name is that of Ephraim McDowell; the last is that of Theophilus Parvin. It is a significant conjuncture; for in passing from the former to the latter, and saluting as we go the "mighty shades" of Daniel Drake, J. Marion Sims and Oliver Wendell Holmes, and their peers, we connect or complete that cycle of "evolution in medicine," which connects the romanticism of the seventeenth century with the scientism of the twentieth. If the choice in the selection of characters (*dramatis personæ*) has been difficult, that of their writing or letters to represent them has been scarcely less so. Of the works, or selections finally decided on, after much deliberation, this much, at least, may be said: that each has a claim founded on some peculiar or special power

along certain scientific and original lines or fields; combining power, pathos, science, skill and beauty; that each one is "a gem of purest ray serene." The poet Dryden says:

"Three *poets in three distant ages born,
Greece, Italy, and England did adorn;
The first in loftiness of thought surpassed,
The next in majesty, in both the last.
The force of nature could not further go;
To make a third she joined the other two."

The physician may as truly say:

Three *physicians, in three recent ages born,
Virginia, Jersey and Buenos Ayres did adorn;
The first in loftiness of thought surpassed,
The next in majesty, in both the last.
The force of nature could no further go;
To make a third she joined the other two.

*Homer, Dante, and Milton. *McDowell, Drake, and Parvin.

I may add, also, that care has been taken, as far as possible to require the character to speak for himself; or in other words to plead his own cause, whenever practical, or possible, instead of the writer attempting to do so for him.

"One good idea
But known to be thine own
Is better than a thousand gleaned
From fields by others sown."—WILSON.

PARVIN'S CHILDHOOD.

Theophilus Parvin, A. M., M. D., LL. D., the subject of this sketch, first saw the light at Buenos Ayres, Argentine Republic, South America, April 30, 1829. His parents were natives of the United States, but were temporarily residing in South America at the date of his birth, his father being minister to that country, from the United States. It has been said that great men, like great mountains stand alone, with the valley of ancestry on the one side, and the gulf of posterity on the other; but the "Finger of Time" in silently tracing the never-ending pages of immortal history distinctly points to the fact that this towering genius did not stand alone; for the foot-hills of his ancestry were of decided magnitude:

"Our ancestry, a gallant Christian race,
Patterns of every virtue, every grace."—COOPER.

A common citizenship holds sacred in the pictured urn of memory the exalted manhood and undying fame of an ancestry "who command their own tribute of affection and admiration of the world." It is but fitting to note that in the characterization of this truly great—I might say remarkable man—that the country which gave him birth is commensurate in greatness to the man. A country far-famed for the length and loftiness of its mountains: the Andes—the highest peaks of which lift their heads in perpetual snow. A land remarkable for the length and breadth of its rivers: the Amazon and Orinoco—whose waters

mingle "the mist of the mountain," with "the spray of the ocean;" the "perfume of the palm" with "the salt of the shell." A region, as the poet, Dryden says, where "Teeming buds and cheerful greens appear." A country celebrated for its rich mines of diamonds, rubies, and precious gems, and abounding in beautiful birds of gorgeous colors, brilliant plumage, and sweetest song. Here, amid these delightful surroundings the sun's rays first glimmered on the opening eye of Theophilus Parvin! Where the Uruguay and Paraguay join glad hands to bear away the burden of the Rio de Laplata, to the bosom of the Atlantic.

"Still rolls on that radiant river,
And the sun unbinds his quiver,
O'er the star-lit stream forever
On its bosom, ever, as before."

Doubtless in after years he thus soliloquized:

"Still o'er these scenes my memory wakes
And fondly broods with miser care;
Time the impression but deeper makes
As streams their channels deeper wear."—BURNS.

"There is an irresistible charm connected with natural scenery—especially with mountains—so powerful that the merest mention of them, the merest sketch of their magnificent features, at once kindles the imagination, and carries the spirit at once into the bosom of their enchanted regions. How the mind is filled with their vast solitude! How the inward eye is fixed on their silent, their sublime, their everlasting peaks! How our hearts bound to the music of their solitary cries, to the tinkle of their gushing rills, to the sound of their cataracts! How inspiring are the odors that breathe from the upland turf, from the rock-hung flower, from the hoary and solemn pine! How beautiful are those lights and shadows thrown abroad, and fine transparent haze which is diffused over the valleys and lower slopes; as over a vast, inimitable picture!" But, alas! "It fades away like the light upon the summer's evening," and "dies like a wave along the shore."

PARVIN'S MANHOOD.

Doctor Parvin came to the United States at an early age and received his academic education at the University of Indiana, at Bloomington, graduating with the class of 1847. He spent three years in New Jersey, teaching, and matriculated at the University of Pennsylvania, where he graduated in medicine in 1852. After serving as an intern in Wills Hospital, in Philadelphia, for one year, he located in Indianapolis (1853), where he practiced for nine years. He was elected to the presidency of the Indiana State Medical Society. He accepted the chair of *materia medica* in the Medical College of Ohio in 1864. In 1867 he assumed the chair of medical and surgical diseases of women. In 1869 his chair was changed to that of obstetrics and diseases of women and children. In 1870 he resigned and went to Indianapolis, as professor of obstetrics and gynecology in the College of Physicians and Surgeons of Indian-

apolis, and in the Medical College of Indiana, after its consolidation with the previously named school. In 1882 he was called to the University of Louisville, but remained there only one year, resigning to accept the appointment of professor of gynecology, obstetrics and pediatrics in Jefferson Medical College. He entered upon his duties at the "Jefferson" in 1883 and faithfully continued them until he was relieved from them by the hand of death in January, 1898, in Philadelphia.

"To live in hearts we leave behind,
Is, not to die."—CAMPBELL.

Doctor Theophilus Parvin was laid to rest, by loving hands in the city of "Brotherly Love," there to await the stillness of the Resurrection Morn, when all creation will be listening to hear its final doom!

"That *morning*, thou, that slumbered not before,
Nor slept, great Ocean! laid thy waves to rest,
And hushed thy mighty minstrelsy. No breath
Thy deep composure stirred, no fin, no oar;
Like beauty newly dead, so calm, so still,
So lovely, thou, beneath the light that fell
From angel chariots sentinelled on high,
Reposed and listened, and saw thy living changed,
Thy dead arise. Charybdis listened, and Scytea;
And savage Euxine on the Thracian beach
Lay motionless; and every battle-ship
Stood still; and every ship of merchandise,
And all that sailed, of every name, *stood still*."—POLLOCK.

Decrepit age, and vigorous manhood, and blooming youth and helpless infancy—on crutches, in the pride of health and strength, in the full blush of promise, in the mere dawn of life gathered around him. Old men were there, whose eyes were dim and senses failing, old ladies, who might have died years ago, and then been old, the deaf, the blind, the lame, the palsied, the living dead, in varied shapes and forms, to witness the closing of that "newly made" grave. Along the crowded path, now they bore him, pure as the "unsunned snow" that silently covered it, and whose days on earth had been as chaste. Far away from "that land of flowers and song," where heaven in its mercy brought him to the quiet of its peaceful shores, he passed away; and the old churchyard "piously covered his remains within her bosom."

"Our Mother Earth! alone, of all the elements, has never proven unfriendly to man. The waters deluge him with rain, oppress him with hail and drown him in inundations. Fire oppresses him with heat, and consumes him in conflagrations; but the earth is ever subservient to his wishes. Though harassed more for the luxuries of life than the necessities, she never refuses her accustomed yield. Though she produces poison, yet she supplies the antidote; thus strewing his path with flowers and his table with plenty; and at last, when he is called upon, to pass through the 'dark valley of the shadow of death,' she piously covers his remains within her bosom."

"Earth to earth and dust to dust;
 Here the evil and the just,
 Here the youthful and the old,
 Here the fearful and the bold,
 Here the matron and the maid,
 In one silent bed are laid."

Some of the introductory lectures, which Doctor Parvin was in the habit of delivering at the beginning of the winter terms, deserve to be preserved as beautiful monuments of a great physician, who was an equally good man. One of them, entitled, "Conduct of the Medical Student" (delivered before the class at Jefferson in 1894), is a remarkable plea for personal, civic, professional virtue. Another one ("Religion in Its Relation to Medical Students," Philadelphia, 1895) attested to Parvin's deeply religious nature, which was probably inherited, his father having been a minister. A few epigrammatic quotations from the two lectures named will throw a characteristic light on the psychologic make-up of Parvin, the man:

"The end of lust is suicide!" . . . "Why should there be two standards of morality, one for men and one for women?" . . . "May there not be scars upon the soul more lasting even than those of the body?" . . . "Let your ears be deaf to the music that lures to destruction, your eyes be blind to the beauty of the siren!" . . . "By the honor you bear your father, or his memory, by the love of your mother, the purity of her womanhood, by her blessed prayers which are hovering like good angels over your head, by a sister's farewell kiss, nay more, in the name and behalf of her who some day shall be nearer and dearer to you than father, mother, and sister, I beseech you: Let no courtesan's caress ever pollute your lips. Make chastity the law of your life!" . . . "Religion is as necessary for the soul of man as food for his body!" . . . What creed shall you embrace? Yonder is the rainbow, lifting its sublime arch to the heavens, and resting its base in the distant, dim horizon. What richness of beauty in its various colors, defying the art of man to reproduce upon canvas. There are the phenomena, but what is the noumenon, the underlying reality, the essential cause—Light? There could be no rainbow if the sun did not shine. Does it require too great exercise of the imagination to find this decomposed light, variously refracted and reflected by raindrop prisms, a partial picture of religious organizations and creeds? There is the blue of Presbyterianism, the purple of Episcopacy, the indigo of the Baptist, the orange of Methodism, the yellow of Congregationalism, yea, the scarlet of Roman Catholicism. Yet by-and-by, when all clouds are gone from human minds, when all errors of scriptural interpretation become impossible, and human reason, divinely guided, discovers only perfect truth, will the unity of the church, for which the Savior prayed, be accomplished; then there will no longer be rays of light with their various colors, but reunited, they will make the earth splendid in glory and perfect in beauty."

With the possible exception of some of the writings of Thomas De Quincy and Washington Irving, there is no prose in existence that excels the above. There is but little extant so good. It is possessed of incomparable felicity; of a melody that is not too subtle to every ear; of a moral persuasiveness that appeals to this, and each succeeding generation. It combines masterly skill with the purest diction contained in the language, in which it is written. Its every line suggests the master. Well may we leave to its fate, such a specimen of our mother tongue! As a lecturer Doctor Parvin had few equals in this country.

"His look drew audience still as night,
Or summer's noontide air."

His career as the master obstetrician of this country is familiar to the medical profession of the United States. During the last quarter of the nineteenth century he ranked undoubtedly among the greatest living authorities on midwifery. His classical work on obstetrics ("Science and Art of Obstetrics") was enthusiastically received by the profession of this country. It unquestionably occupies the same position among obstetric books as Gross' monumental work among surgical books, and Bartholow's "Materia Medica" among works on therapeutics. Not the least admirable feature of Parvin's book is his simple, yet elegant diction. Parvin was a scholarly man, but at the same time a splendid teacher—a combination rarely found. This is what makes his writings doubly valuable. They not only present their subjects in a perfect, masterly fashion, but with that ease and simplicity which characterizes the great teacher. His American edition of Winckel's "Gynecology" was likewise a masterpiece. His smaller writings are scattered through the columns of numerous journals. He was one of the founders of the American Gynecological Society. The honors which were showered upon Theophilus Parvin at home and abroad have been commensurate with his exalted rank in the medical profession of this country.

DOCTOR PARVIN A SURGEON IN THE CIVIL WAR.

"Late on the evening of July 8, 1863, when the intelligence was received at Indianapolis that a rebel force, estimated to be six thousand cavalry, with four pieces of artillery, under command of General John Hunt Morgan, had crossed the Ohio river near Mauckport, and was moving on Corydon, Indiana, Governor Oliver Perry Morton at once issued a patriotic call upon the citizens of the State, to leave their various occupations and organize for defense. Under this call, within the short space of forty-eight hours, sixty-five thousand men had tendered their services. Of this force, thirteen regiments and one battalion were organized specially for this emergency, and the regiments designated numerically, from One Hundred and Second to One Hundred and Fourteenth, inclusive, the battalion being assigned to the One Hundred and Seventh Regiment."—"Adjutant General's report of Indiana," Volume III, page 189. To this One Hundred and Seventh Regiment Doctor Theophilus Parvin was appointed surgeon.

From the earliest period of our nation's history the medical profession has ever stood firm in the defense of our country's cause; and the names of Doctors Joseph Warren, Hugh Mercer, and Benjamin Rush, are indelibly written in the annals of the Revolution; and their deeds recorded show that they were not idle spectators of the fray. And the "Juggernaut of war" never stained its wheels with nobler blood, nor left grander spirits in ruins, than those among our noble surgeons, during our last sad interecine conflict. These noble men responded to the summons of Providence for a glorious work, and like the chosen of old, many closed their work with the blood of martyrdom:

"Nor shall their glory be forgot
While Fame her records keep,
Or Honor points to the hallow'd spot
Where Valor proudly sleeps."

They have at last reached that pure Empyrean and to use Shelly's words, robed in dazzling immortality, sit on thrones

"Built beyond mortal thought,
Far in the Unapparent."

Doctor Parvin considered education a life work; and consequently was a student of the closest application almost his entire life; being a careful reader, a deep thinker, and a profound reasoner. He possessed both skill and power, and by diligent application had wrought up the crude materials, that he had gathered from books, science, and nature with such exquisite skill and felicity that he had added a hundred-fold to their original value, and justly made them his own. Or, in language of M. Rollin, the historian: "To adorn and enrich my own," says that celebrated writer, "I will be so ingenuous as to confess that I do not scruple nor hesitate to rifle wherever I come, and that I often do not cite the authors from whom I transcribe, because of the liberty I take to make some slight alterations."

Doctor Parvin was not only a great physician and obstetrician, but he was one of the greatest literary men of this age and country. He realized Lord Brougham's advice: "Know something about everything and everything about something." As a consultant he was sought far and near. He encountered hostility in his upward flight (when did soaring genius fail to do it?), and meaner birds would have winged him from his pathway to the skies; but, as it were, with crimson beak and bloody talons he rent his way through the carrion crew, and sailed majestically on to bathe his plumage in the sun. All difficulties, one by one, had apparently vanished before him; and he at last reached the consummation of his earliest wishes, the ambition of his childhood's prayer. The late Doctor Holmes said: "Nature is in earnest when she makes a woman." She certainly was in earnest when she endowed Doctor Parvin with these rare professional gifts which Nature alone can bestow. Thus, after, nearly reaching the number of years allotted by the Psalmist, perished Theophilus Parvin, a man designed by nature and himself for inevitable fame; a man whose natural abilities were as faultless as his intellectual constitution was vigorous and brilliant; a man to whose

advancing eminence there was scarcely a limit, had not the powers of his mind proved too great for the element of clay which enclosed them.

"At last the rootlets of the trees
Shall find the prison where he lies
And bear the buried dust they seize
In leaves and blossoms to the skies."

In the *Metamorphoses* of Ovid there is represented a sublime spectacle where the prophetess, Anna, takes in her arms the infant Jesus (*physician*), who is to heal alike the maladies of the *souls* and *bodies* of a "sin-sick world;" and, the spirit of prophecy resting upon her, beholds "the Sun of Righteousness arise with healing in his wings."

"Great Aesculapius, skilled to heal mankind;
All-ruling pagan, and Physician kind;
Whose arts medicinal can alone assuage
Diseases dire, and stop their dreadful rage.
Strong, lenient God, regard our suppliant prayer,
Bring gentle health, adorned with lovely hair;
Convey the means of mitigating pain,
And raging deadly pestilence restrain.
O, power, all-flourishing, abundant, bright,
Apollo's honored offering, God of light;
Husband of blameless health, the constant foe
Of dread disease, the minister of woe,
Come, blessed Saviour, human health defend,
And to this mortal life afford a prosperous end."

—ORPHEUS' HYMN TO AESCULAPIUS.

The poet Lowell's tribute to Nathaniel Hawthorne in his Fable for Critics admirably depicts Doctor Parvin in the following classic verse:

"There is [*Parvin*] with genius so shrinking and rare
That you hardly at first see the strength that is there;
A frame so robust, with a nature so sweet,
So earnest, so graceful, so solid, so fleet,
Is worth a descent from Olympus to meet:
'Tis as if a rough oak that for ages had stood,
With his gnarled bony branches like ribs of the wood;
Should bloom, after cycles of struggle and scathe,
With a single anemone trembly and rathe.
His strength is so tender, his wildness so meek,
That a suitable parallel sets one to seek.
He's a John Bunyan, Fouque, a Puritan Tieck:
When Nature was shaping him, clay was not granted
For making so full-sized a man as she wanted,
So, to fill out her model, a little she spared
From some finer-grained stuff for a woman prepared.
And she could not have hit a more excellent plan
For making him fully and perfectly man."

Doctor Parvin had a shrinking from the lionizing which is done on trust—that unpleasant phase which has crept over society during the last few years. The principle of giving the highest praise to the man, who can play the loudest on the "big drum" was a disgusting one to him. A silent rebuke to the "fussiness" of the last decade of the nineteenth century, and to its fulsome adulation of what is unworthy, may be traced

in his pages. This man had a strong and fearless spirit, and though he discussed questions occasionally which have been found too high for settlement in all ages, he did so with humility and on reverent knee. He was an interpreter, through whose writings and awe-inspiring creations breathes the soul that longs after the accomplishment of the dream of unnumbered centuries—the brotherhood of man. Other men are known to posterity only through the medium of history, which is continually growing faint and obscure; but the intercourse between the author and his fellow-men is ever new, active and immediate. He has lived for them more than for himself; he has sacrificed surrounding enjoyments, and shut himself up from the delights of social life that he might the more intimately commune with distant minds and distant ages. Well may the world cherish Theophilus Parvin's renown; for it has been purchased, not by deeds of violence and blood, but by the diligent dispensation of *health* and *happiness*. Well may posterity be grateful to his memory; for he has left it an inheritance, not of empty names and sounding "claims," but a record filled with noble deeds done to suffering humanity, and treasures of wisdom, bright gems of thought, and golden veins of language. Upon reflecting it almost provokes a smile at the vanity of human ambition to observe what parsimony is observed in doling out a scanty nook, a gloomy corner, a little portion—"six feet of earth"—to those who once occupied the world's thought and admiration:

"Our thoughts are with the dead; with them
We live in long-past years,
Their virtues love, their faults condemn,
Partake their hopes and fears;
And from their lessons seek and find
Instruction with an humble mind.

"Our hopes are with the dead; anon
Our place with them will be,
And we with them shall travel on
Through all Futurity;
Yet leaving here a name, I trust,
That will not perish in the dust."—ROBERT SOUTHEY.

Doctor Parvin was president of the Indiana State Medical Association at its meeting in 1862. He was president of the American Medical Association in 1879; which met at Atlanta, Georgia. His "Presidential Address," delivered before the "Atlanta Meeting," was a masterly production of its kind; and was eagerly listened to by America's most noted physicians and surgeons. Among the number present at this noted meeting were Doctors Oliver Wendell Holmes, T. Gaillard Thomas, Austin Flint, Fordyce Barker, J. Marion Sims, Robert Bartholow, Willard Parker, Alfred L. Loomis, John Collins Warren, Hunter McGuire, Henry P. Bowditch, William Pepper, D. Hayes Agnew, Samuel D. Gross, John Ashhurst, DeForest Willard, J. Adams Allen, DeLaskie Miller, Thomas B. Harvey, Joseph Eastman, David W. Yandell, James W. Holland, and a host of other noted physicians which space forbids mention. Since that historic meeting, more than three decades have passed away—rolled on into the eternal past; and with the passing of those years, have passed away all the above named physicians, with the possible excep-

tion of the last named. They have joined the silent majority—"have crossed over the river and rest under the shade of the trees."

"These our actors * * * were all spirits and
Are melted into air, into thin air:
And like the baseless fabric of a vision,
The cloud capp'd towers, the gorgeous palaces,
The solemn temples, the great globe itself,
Yea, all which it inherit, shall dissolve,
And like an unsubstantial pageant faded,
Leave not a rack behind. We are such stuff
As dreams are made of, and our little life
Is rounded with a sleep."

But there are things which do not die; neither can oblivion bury them. These are what the mere chronologist neglects, and the student is rarely taught to consider. The diamond is hidden in quartz and feldspar and pyrites, and happy is he who can detect the *true* from the *false* lustre. The page of history is lifeless to him who reads merely to remember facts, and to shower his crude memories upon hearers or readers: to him there is no rejoicing in the richness of old tradition, unless its details can be grasped in his mnemonic chart. When Simonides offered to teach Themistocles the art of memory, he answered: "Ah! rather teach me the art of forgetting, for I often remember what I would not, and cannot forget what I would." Doctor Theophilus Parvin, like Shakespeare, lived (mentally, or as the tragic poet (Shakespeare) says, "in your *mind's eye*") all lives. He listened, as it were, to the eager eloquence of the great orators and sat upon the cliffs and with the tragic poet heard "the multitudinous laughter of the sea." He saw Socrates thrust the spear of question through the shield and heart of falsehood. He was present, as it were, when that great man drank hemlock and met the "night of death," tranquil as a star meets morning. He listened to the peripatetic philosophers and remained unpuzzled by the sophists. He watched Phidias—the Athenian sculptor—as he chiseled shapeless stone to forms of love and wonder. The Imagination had a stage in Doctor Theophilus Parvin's brain whereon were set all scenes that lie between the "morn of laughter" and the "night of tears" and where his players boded forth the *false* and *true*, the *joys* and *griefs*, the "careless shallows" and the "tragic deeps" of universal life. From Theophilus Parvin's brain there poured a "Niagara of gems" spanned by fancy's seven-hued arch. He was as *many-sided* as clouds are *many-formed*. To him, *giving* was *hoarding*, *sowing* was *harvest*; and *waste itself* the source of wealth. Within his marvelous mind were the fruits of all thought *past*; the seeds of all *to be*. As a drop of dew contains the image of the earth and sky, so most all there is of life, was mirrored forth in Parvin's mind. As Milton says in *L'Allegro*:

"Such sights as youthful poets dream
On summer eves by haunted streams."

Theophilus Parvin was an intellectual ocean, whose waves touched all the shores of thought; within which were all the tides and waves of destiny and will; over which swept all the storms of *fate*, *ambition* and

revenge; upon which fell the gloom and darkness of despair and death, and all the sunlight of content and love; within which was the inverted sky lit by the eternal stars: an intellectual ocean towards which all rivers run and from which, now, the isles and continents of thought, receive their dew and rain. He dwelt by the mysterious Nile amid the vast and monstrous. He knew the very thought, that wrought the form and features of the sphinx. He heard great Memnon's morning song, when marble lips were smitten by the sun. He laid him down with the embalmed and waiting dead and felt within their dust the expectation of another life, mingled with cold and suffocating doubts—"the children born of long delay." He walked the ways of mighty Rome and saw great Caesar with his legions in battle array. He stood with vast and motley throngs and watched the triumphs given to victorious men, followed by uncrowned kings, the captured hosts, and all the spoils of ruthless war. He heard, as it were, the shout that shook the Coliseum's roofless walls, when from the reeling gladiator's hand the "short sword" fell, while from his bosom gushed "the stream of wasted life." He lived (in the mind's eye) the life of savage men. He trod the forest's silent depths and in the desperate game of life or death, he matched his thought against the instinct of the beast. He knew all crimes and all regrets, all virtues and their rich rewards. He was victim and victor, pursuer and pursued, outcast and king. He heard the applause and curses of the world and on his heart had fallen all *nights* and *noons* of *failure* and *success*. He felt the thrill and ecstasy of love, the savage joys of hatred and revenge. He heard the hiss of envy's snakes and watched the eagles of ambition soar. There was no hope that did not set its star above his head, no joy that had not shed its sunshine on his face. He knew the unspoken thoughts, the dumb desires, the wants and ways of beasts. He felt, as it were, the crouching tiger's thrill, the terror of the ambushed prey; and with the eagles he had shared the ecstasy of flight and poise and swoop; and had lain with sluggish serpents on the barren rocks, uncoiling slowly in the heat of noon. He sat, as it were, beneath the Bo-tree's contemplative shade, wrapped in Buddha's mighty thought and dreamed all dreams that *light*—the alchemist—has wrought from *dust* and *dew* and stored within "the slumbrous poppy's subtle blood." He could kneel with dread and awe at every shrine; offer every sacrifice and every prayer; feel the consolation and the shuddering fear; mock and worship all the gods; enjoy all heavens and feel the pangs of every hell!

We pay the following tribute to the memory of Doctor Theophilus Parvin:

But *one* star has set, its night is all past,
 And its glory has paled in the morning at last!
 Its ray was the full, serene splendor of light,
 And the "morning stars" wept when it fled from the night.
 A tribute of justice demands that my song
 Should linger in cadences loving and long,
 To tell of the deeds a high genius has done;
 To honor the conquest a hero has won;
 To name o'er the actions that cluster and shine,
 A sacred Shekinah o'er memory's shrine.

With loftiest endeavor and purposes high,
 With soul full of courage, he dared to defy
 The scorn of the servile, the slight of the proud,
 Contented to read, like a cross on the cloud,
 The sign that is set in the heavens for those
 Who valiantly, fearlessly, grapple their foes,
 When Ignorance, Error, and Folly oppose.

When Merit, at last, shall to utterance be driven
 And honors befitting his deeds shall be given,
 The people shall fill up the great censor of the *nation*,
 And burn a sweet incense to the memory of Parvin.

L'ENVOI.

Now, gentle reader, as our journey is ended,
 Mute is our minstrel, silent is our song;
 Sweet the bard's song whose strains our courage attended
 Pleasant the paths he guided us along.
 Now must we PART—Oh, word all full of sadness,
 Changing to pensive retrospect our gladness!

Reader, farewell! we part perchance forever,
 Yet may I hope to meet with thee again;
 But e'en though fate our fellowship may sever,
 Reader, will aught to mark that tie remain?
 Yes! there is left one sad sweet bond of union,—
 Sorrow at parting links us in communion.

But of the *twain*, the greater is my sorrow,—
 Reader, and why?—Bethink thee of the sun,
 How, when he sets, he waiteth for the morrow,
 Proudly once more his giant race to run,—
 Yet e'en when set, a glow behind him leaving,
 Gladdening the spirit, which had else been grieving.

Thus mayst thou feel, for thou to Parvin only
 Biddest farewell, nor carest aught for me.
 Twofold *my* parting, leaving me all lonely,—
 I now must part from Parvin and from thee,
 Parting at once from comrade and from leader,—
 Farewell, great minstrel! farewell, gentle reader!

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Hushed is the harp, its music sunk in slumbers,
 Memory alone can waken now its numbers.

Thus we fain would write his epitaph:

"These lines inscribed to gentle Parvin's name,
 May speak *our* gratitude, but not *his* fame.
 What heart but feels his sweetly moral lay,
 That leads to truth through pleasure's flowery way?
 Celestial themes confess'd his tuneful aid;
 And Heaven, that lent him *genius*, was repaid.
 Needless to him the *tribute* we bestow,
 The transitory breath of fame below:
 More lasting rapture from his *works* shall rise,
 While converts thank their doctor in the skies."

402 North Mill Street.

TRANSACTIONS.

CLINICAL SOCIETY OF THE UNIVERSITY OF MICHIGAN.

STATE MEETING, JANUARY 11, 1911.

THE PRESIDENT, REUBEN PETERSON, M. D., IN THE CHAIR.

REPORTED BY JOHN WILLIAM KEATING, M. D., SECRETARY.

REPORTS OF CASES.

A CASE OF HYSTERIA WITH VOMITING.

CARL D. CAMP, M. D.

Department of Neurology.

The patient, a girl aged nineteen years, began vomiting small amounts in February, 1910. A physician was called in but the patient became worse and had to go to bed. The condition was diagnosed as ulcer of the stomach and the patient was placed on a diet. In May, 1910, the patient was operated upon for ulcer. It was said that an ulcer was found and that a gastroenterostomy was done. Nevertheless, she continued vomiting. She had constant pain and tenderness in the abdomen. A short time before she had had a sudden pain in the right leg and following that became completely paralyzed in the right leg. She also lost all sensation in that leg. About a week before I saw her she began having smothering spells between 5 and 6 P. M. The family expected her to die in these spells. She complained of headache and some tendency to retention of urine. She had been taking morphin in irregular amounts, not more than one grain daily. On examination, she appeared somewhat emaciated. She showed stigmata of degeneration. The pupils were small, the left slightly larger than the right, but there was no paralysis of the face, et cetera. The diagnosis was hysteric paralysis of the right leg and the history pointed to the vomiting as being also hysteric in origin. The patient was sent to the University Hospital. Here the symptoms on admission were the same as at home, but electric treatment produced complete recovery of power in the right leg. The first day in the hospital she retained breakfast and the next day she vomited only one meal. She complained of a general restlessness with marked skin irritation due to deprivation of morphin. She left at the end of the week, against advice. On returning to her home she began vomiting again, and returned to the hospital on January 11 on account of vomiting. She had pain in the epigastrium and back of the head. She now vomits after each meal, and complains of tenderness in the abdomen. Menstruation began at sixteen, stopped in March, 1910, and has not been present since. The gynecologic examination showed a somewhat undeveloped uterus, but otherwise nothing to account for the suppression of menstruation. At present the vomiting does not seem to yield to psychotherapy. But the character of the vomiting and the way it yielded before to these measures suggests the diagnosis of hysteric vomiting.

DISCUSSION.

DOCTOR REUBEN PETERSON: Hysterical vomiting is not infrequently met with by the gynecologist. Sometimes it is due to pelvic lesions but in my experience it is more often dependent upon the general nervous condition of the patient, and is met with in a certain type of nervous patient. Oftentimes the cessation of the vomiting which follows gynecologic operations of various kinds is not due directly to the cure of the pelvic lesion but to suggestion. Then, after the effects of the operation pass off the patient relapses and is as bad as ever. Hence such patients should only be subjected to operations because of clearly defined pathologic reasons.

DOCTOR CAMP (closing the discussion): Treatment with the stomach tube is not very effective. Such patients develop the stomach tube habit; then they do not vomit but want their stomachs washed out after each meal. Complete cessation of menstruation since March is an interesting feature of the case. Also, the point which we considered rather important was that the patient had passed through many hands, and had been operated upon without relief.

CALCULUS ANURIA.

DEAN LOREE, M. D.

Department of Genitourinary Surgery.

Calculus anuria is a condition which is comparatively rare. In ten years of hospital experience this is the first case that I have seen. The patient is a Findlander, forty-six years of age, and the father of six children, all of whom are well. His trouble began three years ago, at which time he noticed "white material in the urine and had frequent desire to pass it." So far as his observation is concerned, what he saw in his urine has little significance, but the fact that he passed it often, is quite positive proof that he had cystitis. Fourteen months ago he had a severe attack of pain in the left side, which was localized in the region of the kidney and radiated to the groin. He also had nausea, vomiting and sweats. A physician whom he called, administered remedies (probably morphin) hypodermatically. Last March he had an attack similar in all respects to the first one, following which the soreness has been severe enough to keep him from his work.

Last July he entered Saint Mary's hospital, Ishpeming, where he was operated upon July 6. His symptoms were considered severe and typical enough to warrant exploration, but being unable to palpate a stone through the wall of the kidney, the latter was not explored. Six days following his operation he developed severe pain in the right side and three weeks later another attack affecting his right side, which he describes as similar to the two he had on the left side. Shortly after this he passed a calculus per urethram.

He entered University Hospital December 6, 1910, and a few days later I attempted catheterization of his ureters, but was unable to introduce the catheter to the left kidney. From the right kidney the urine contained blood and pus. Radiographic plates showed a shadow in the region of the right kidney, but the left side was clear. December 20, I per-

formed nephrotomy on the right side and removed this stone, which I will pass around. Following this operation he did nicely for several days. On the evening of January 2, I was informed that the patient had passed no urine since 10 o'clock that morning. Thinking perhaps he had retention he was twice catheterized but the bladder was dry. He was ordered prepared for operation, which was scheduled for the next morning unless his symptoms should become alarming during the night. About 5 o'clock A. M. he passed one ounce of urine, then two ounces, and three ounces respectively, after which he passed normal quantities for several days. On January 20, 1911, his anuria returned, and continued for about seventy-two hours, during the latter part of which time his temperature was slightly elevated, his pulse rapid and he began vomiting. Several x-ray plates were taken, but all were negative. Attempts at ureteral catheterization were unsuccessful on both sides.

I performed the second nephrotomy January 22, removing this calculus from the left kidney pelvis. I was of the opinion that a piece broke off when I was removing it, but I could not find it. Retrograde catheterization of the ureter failed. As I was pressed for time, I could not explore further, but instituted rubber tube drainage to the kidney, and put the patient to bed. The dressings continued soaked with urine and the bladder dry for four days, at which time he passed two ounces of urine per urethram. This urine was not bloody, which fact leads me to believe that it was from the right side. At the present time he is passing a sufficient amount of urine from the bladder, though the dressings on the left side are still soaked with urine.

I have hurriedly looked up the literature on the subject and find the report of one case going twenty-three days, and resulting in death and three cases that went from twelve to fifteen days without recoveries. I find that death resulted in but one instance within forty-eight hours; therefore it would seem that we are quite secure in leaving these patients for that length of time, though they pass very rapidly from a condition of comfort to uremic convulsions, coma and death.

The cause of calculus anuria may be calculi in both ureters; a calculus in one ureter when the other kidney is not functioning; a calculus in the stem of both ureters; a calculus in the ureter of a solitary or horseshoe kidney or a calculus in one ureter may cause reflexly a suppression of function in the other kidney.

DISCUSSION.

DOCTOR REUBEN PETERSON: It is interesting to see the advances renal surgery has made during the past twenty years. Two decades ago such surgery as Doctor Loree has so successfully employed in this case would hardly have been deemed justifiable. Now it would not be right not to institute such procedures. I distinctly remember a case in my practice some seventeen or eighteen years ago illustrating what results when the pelvis of the kidney is completely blocked by a calculus. A young woman complained of pain in the right side and an exploratory laparotomy was performed, since nothing abnormal could be found with the appen-

dages and there had been no typical attacks of appendicitis. A large retroperitoneal fluctuating tumor of the right side was found to be a hydronephrotic kidney. The cause of the hydronephrosis was found to be a calculus, about the size of the one just shown by Doctor Loree located in the pelvis of the kidney and completely blocking the ureteral opening. Such cases as the one reported by Doctor Loree must be very rare.

DOCTOR LOREE (closing the discussion): This is not an organic trouble of the kidney, but simply blocking of the ureters. Hydronephrosis must follow. If it continues indefinitely, degeneration of the cortex is inevitable. There is either a reflex disturbance of the function of the right side or a calculus that has not yet shown by any x-ray. As regards composition the calculi are all phosphatic; they are all soft, and crumble quickly upon drying. The left ureter was probably not obstructed before the first operation, though a stone was present at the time.

**ABDOMINAL CESAREAN SECTION IN A CASE OF CONTRACTED
PELVIS. HYDROCEPHALIC CHILD WITH SPINA BIFIDA.**

HOWARD H. CUMMINGS, M.D.

Department of Obstetrics and Gynecology.

Case 537, Miss J., primipara, aged twenty-seven, was admitted to the University Maternity Hospital on December 2, 1910.

The patient's last menstrual period began on March 27, 1910. The course of pregnancy was perfectly normal in all respects. The family history was negative; likewise the personal history. The menstrual and leucorrheal histories were normal. No venereal history could be obtained.

Examination—December 4, 1910.—A general examination showed the patient to be of diminutive stature, measuring four feet, nine and one-half inches. The length of the forearm, likewise the leg, was very short. With the patient in the standing posture, there was noted a very marked lordosis in the lower lumbar and sacral regions. The abdomen was very pendulous. The chest was normal with the exception of a supernumerary nipple under the right breast. This nipple possessed a distinct, pigmented areola and from it colostrum could be expressed. The fundus of the uterus extended to within two centimeters of the ensiform. The fetus was in the left occipitoanterior position. The frontal prominence was palpated rather high up on the right side. The pelvic measurements were as follows: Interspinous diameter, 24.5 centimeters; intercrystal diameter, 27.5 centimeters; bitrochanteric diameter, 31 centimeters; external conjugate, 17.5 centimeters; diagonal conjugate, 11.5 centimeters. The measurements of the outlet were normal.

To summarize: The examination showed the patient to be of dwarf-like stature with a marked lordosis and a simple flat pelvis.

Labor.—On January 10, 1911, at 2 A. M., the patient went into labor. The head at this time was above the pelvic brim and very freely movable. The pains came at short intervals and were very severe. A vaginal examination was made with rigid aseptic precautions, after the patient had



FIGURE I.—Hydrocephalus with Spina Bifida.

been in labor twelve hours. The cervix was dilated to about the size of a silver dollar and there was no engagement of the head. However, as the patient was in excellent condition, the test of labor was prolonged eight hours. At the end of this time a second vaginal examination was made. The cervix was about one-half dilated, but the head had not engaged and was still freely movable. The question of pubiotomy was considered, but on account of the relatively large head of the child this course was abandoned and abdominal Cesarean section was decided upon.

Operation.—Abdominal Cesarean section was performed by Doctor Peterson, January 10, 1911, at 11:30 P. M., the patient having been in labor over twenty-two hours. The operation in detail was as follows: A five-inch incision was made at the left of the umbilicus, half of the incision being above and half below the umbilicus. The uterus was pushed against the abdominal wall and incised. The placenta was implanted on the anterior wall and was cut through. A leg was seized and the child delivered. The hemorrhage was not unusual. The uterine muscle was sutured with number two plain Van Horn catgut. Two rows of continuous sutures were passed. A Lembert suture of silk was used for the serosa. Contraction of the uterus was aided by the use of hot packs and kneading. The pelvis was carefully sponged and all of the clots removed. An examination at this time showed a projection below the promontory. Silkwormgut sutures were passed through all of the layers; catgut was used in closing the peritoneum, fascia and skin; the silkworm sutures were tied over a roll of gauze. The patient was in good condition at the end of the operation. The wound healed by first intention and at the end of twenty-four days the patient was discharged from the hospital in excellent condition.

Examination of Child.—The child was a male, weighing three thousand sixty grams and having a total length of fiftytwo centimeters. The head was large, the enlargement being marked in the anteroposterior diameters [Figures I and II]. The anterior fontanelle measured sixteen centimeters in length and eight centimeters in width. Both fontanelles were tense and bulging and imparted no pulsations. The left arm and both legs were paralyzed. There was no deformity on the anterior part of the child's body. On the back, in the middle thoracic region, was an elevated area, dark red in color, and about six centimeters in diameter. The periphery of this area was covered by skin which was very hairy; between this and the inner, red area, medullovasculosa, was the thin, pink area, epitheloseosa. In the upper portion of the red area was a small opening from which clear, cerebrospinal fluid exuded. In spite of the fact that this area was dressed frequently with sterile gauze and vaseline, three small ulcerated areas appeared. Below the reddened, elevated area on the back, could be seen an area, which was elevated and covered by normal skin. Palpation of this region revealed a cystic condition and a wide cleft in the spinal canal.

The Neurologic department returned a report of hydrocephalus asso-

ciated with spina bifida with spinal cord involvement. The paralysis of the left arm was evidently central in origin, while the paralysis of the lower extremities was of peripheral origin.

The Ophthalmologic department reported no optic lesions.

That the hydrocephalic condition was a progressive one, was demonstrated by measuring the head after an interval of fourteen days. The following chart will give a comparison with a normal child's head and will show the increased enlargement.

DIAMETER	NORMAL CHILD AT BIRTH	BABY J. AT BIRTH	BABY J. AT 14TH DAY
Occipitomenal	14 cm.	15 cm.	15 cm.
Suboccipitobregmatic	9.5 cm.	11 cm.	11.5 cm.
Occipitofrontal	11.5 cm.	13.5 cm.	14.5 cm.
Frontomenal	8.25 cm.	10 cm.	12 cm.
Biparietal	9.5 cm.	9 cm.	9.5 cm.
Bitemporal	8.25 cm.	8.5 cm.	8.5 cm.

The child's general condition was very satisfactory. At the end of two weeks the child's weight nearly equaled the birth weight and it nursed vigorously. However, when three weeks old, it became very fretful, had convulsive movements, refused to nurse and died on the twenty-fifth day after delivery.

DISCUSSION.

DOCTOR GEORGE KAMPERMAN: In this case there was no doubt some deformity of the pelvis as well as a contraction. Examination of the sacrum at the time of operation showed a very prominent sacral promontory which projected forward to a marked degree. Just below the promontory was another projection, probably an unusually prominent sacral vertebra. No doubt when we measured the internal diagonal conjugate it was not measured from the true sacral promontory.

Pelvic contraction is usually a fairly definite condition. But pelvic contraction does not always mean disproportion. Disproportion is not very definite, and is always relative. In reaching a conclusion as to a disproportion the fetus must be considered as well as the pelvis. A given small pelvis may allow of easy spontaneous delivery of a small child, while it might offer serious obstruction to the passage of a larger child. In most "border-line" cases we have no accurate means of determining whether a serious relative disproportion exists, and a "test of labor" is usually necessary to make the diagnosis, and incidentally it gives the mother the fairest chance. Nature does a great deal for these patients, but at times she needs assistance.

DOCTOR CARL D. CAMP: This condition is not very uncommon and the treatment is important. Ordinarily congenital hydrocephalus seems impossible of satisfactory treatment. Simple puncture of the ventricles is rapidly followed by recurrence of the distension and operations for securing permanent drainage of the ventricles into the subcutaneous tissues, as performed by Mikulicz, Krause, and others are usually unsatisfactory because the drainage is not permanent. On the other hand, the

operation for an ordinary uncomplicated spina bifida is comparatively simple, especially when there is no great deficiency of bone and no involvement of the spinal cord. However, when a spina bifida is combined with internal hydrocephalus the increased pressure within the canal leads to recurrence of the cystocele in spite of complicated plastic bone and muscle transplantation operations done to overcome it. Heile first operated such a case by making an opening from the spinal dura directly into the peritoneal cavity in the vicinity of the spina bifida. Although the child (two days old) stood the operation well, it died the next day, apparently because of too rapid drainage from the spinal canal. This was obviated in another case by the following technic: after removing the skin covering (the spina bifida) the dura mater was drawn together by "button sutures" to close the canal. A subcutaneous passage was then made from the lower end of the spinal cord to the lateral edge of the lumbar muscle. There a two-centimeter cut was made in the abdominal wall opening into the peritoneal cavity. Six strands of silk were drawn through this passage under the skin with one end in the spinal canal, the other put in the peritoneal cavity, thus forming a wick drain. The defect in the spinal canal was covered by the skin. The small incisions in the peritoneal cavity closed tightly, and the child kept lying down on the abdomen or back for ten days. The wounds healed without reaction and at the time of reporting the case, six months later, the head was normal, the spina bifida healed and the child developed a normal mentality. It seems as though this would be an ideal case for the operation proposed by Heile. If a failure, little harm would be done, because in his present condition it is impossible for the child to live, whereas, prompt treatment offers much chance for complete recovery.

DOCTOR REUBEN PETERSON: It is a good plan, always adopted in the obstetric clinic, to give a fair test of labor in each case. In this case the patient was in labor twenty-four hours with the head still above the superior strait and the measurements indicative of a slight contraction of the pelvis. While pubiotomy would have been justifiable in this case, abdominal Cesarean section was preferred because by the operation the child has a better chance and because the maternal chances were good, since only a few very careful vaginal examinations had been made. Of course it was practically impossible in this case to make a diagnosis of hydrocephalus in utero. This can only be done when the hydrocephalus has assumed enormous proportions, which was not the case here. In the same way it was impossible to make a diagnosis of spina bifida prior to the birth of the child. While it might at first glance seem unfortunate to make a Cesarean section with the fetus thus deformed, it would have been equally contraindicated to apply forceps to a hydrocephalic head after pubiotomy. The size of the child's head is evidently much larger than at birth from an increase of the fluid. Undoubtedly the case is hopeless and no surgical operation should be undertaken except as an experimental procedure.

†ust why this patient should have had the rise of temperature after

the operation is hard to say. It did not seem due to lack of drainage, and there was no reason why she should have had sepsis for it practically was a clean case. In fact only in clean cases should the classical Cesarean section be performed. Where a woman is septic from repeated examinations or attempts at delivery, it would be far preferable to do caniotomy than perform a Cesarean section, for the mortality is very high in the presence of sepsis.

*REPORT OF A CASE OF DETACHMENT OF THE RETINA
TREATED BY POSTERIOR SCLEROTOMY.*

ALBERT E. ALLDER, M. D.

Department of Ophthalmology.

In a paper presented before the Section of Ophthalmology of the American Medical Association June 7, 1910, Doctor Casey Wood gives a brief historic review of the treatment of detached retina with the most important procedures now used by ophthalmic surgeons in the attempt at curing this condition. He says as early as 1722 Saint Ives described a condition which undoubtedly was retinal detachment. Morgagni described it in 1740, and James Ware, in 1805, suggested posterior sclerotomy as the correct method of treatment and described the technic.

As to the cause of retinal separation we cannot say that there is one etiologic factor for all cases because this is not a pathologic entity, a disease in itself, but a sign of several quite different conditions. Fuchs mentions two main causes for detachment: (1) Traction on the retina, as in loss of vitreous. Shrinking of the vitreous following old inflammations whereby bands are formed which, becoming attached to the retina, draw it away from the choroid. High myopia and senile detachment. The cause of detachment in the last two conditions is not fully understood. (2) In contradistinction to the first class of cases are those wherein detachment is caused by active propulsion of the retina away from the choroid, as in acute exudative choroiditis, hemorrhages, tumors and cysts.

The diagnosis is made by means of the ophthalmoscope and by limitation of the visual fields. The detached portion being more hyperopic than the surrounding fundus, the retina has a grayish hue with a dull lustre and is thrown into numerous folds which is in marked contrast to the rest of the fundus, this being red or pink. Blood-vessels passing over the detached portion are markedly tortuous following the folds and are dark-red in appearance, almost black, due to the interception of the rays of light returning from the fundus, which consequently do not reach the observer's eye. The retina in serous detachment, or in those conditions where fluid underlies, is very tremulous when the eye is moved. This is not so in detachment due to tumor because the retina is in contact with the underlying solid growth. The intraocular tension is lowered in those cases where the detachment is caused by bands of adhesions or loss or shrinkage of the vitreous. In those due to tumor it is normal or raised, while in both cases the field of vision is reduced corresponding to the detachment. The prognosis on the whole is poor.

Treatment.—Posterior sclerotomy was advised but patient left the hospital and did not return until December 12, when a posterior sclerotomy was done, the conjunctiva being dissected from the sclera below and temporally, the puncture extending through the retina and into the vitreous. The knife was then turned at right angles to allow the subretinal fluid to escape, after which it was withdrawn and the conjunctiva sutured over the wound. About ten minims were evacuated. The patient was put to bed, atropin instilled and eyes bandaged. Purgatives were administered and free diaphoresis obtained by one-eighth grain of pilocarpin and hot water bottles. This was repeated every other day for one week.

The condition not showing much improvement the operation was repeated on January 4, 1911. On January 6, the retina was not completely replaced but showed marked improvement. The whole fundus was red and vessels were of normal appearance. On movement of the eye the retina could be seen to move, but very much less than formerly, and the gray ashy appearance was replaced by that of a nearly normal fundus. At this time the patient says his vision is better and the field as tested with hand movements is very greatly enlarged.

On January 24, a third operation similar to the first two was done with escape of several drops of a thin watery fluid, since which time the patient has been in bed.

It is too early to predict the outcome. When we remember that the greatest per cent of recoveries is thirty-one and one-tenth it would seem wise to give a guarded prognosis. And as relapses have occurred four years after an apparent cure this should make one still more conservative in predicting a favorable outcome, but at present the case seems quite hopeful of ultimate recovery.

DISCUSSION.

DOCTOR WALTER R. PARKER: Surgically these cases of detached retina belong to a rather large group of cases in which the results are better immediately after operation than at a subsequent examination. Very often the retina will go back immediately after operation, only to be redetached later. I have seen a case in which the patient would have a fair vision when lying on his back and be practically blind when standing.

The purpose of the operation is, first, to restore the retina to its proper place, and, secondly, to secure it in this position. The first is accomplished by tapping the sclera and drawing off the subretinal fluid; the second by puncturing the retina and, if possible, dividing any adhesive bands that may hold the retina in its false position. The more recent the detachment the more successful the operation.

While the result, in the majority of cases, is far from perfect, good results are obtained often enough to warrant surgical interference. I have a patient on whom I operated five years ago, who still has almost a perfect field of vision. The operation may be repeated several times. In the case reported, I operated three times. The fields are greatly increased,

but we must withhold our prognosis for a considerable time. Without an operation this case would certainly have been progressively bad.

Recent cases may be treated by rest in bed, pilocarpin sweats, and salines. Failing in this I believe we should resort to operative procedure.

DOCTOR GEORGE SLOCUM: In connection with the discussion of this case one might mention a few interesting features of those cases of detachment of the retina following trauma.

In such cases, a practical point for us to remember in the prognosis is that the detachment is often a long time delayed in showing itself. Whether the detachment occurs in small amount immediately following the contusion and later on increases or whether it is a delayed result of the trauma, it is hard to say unless one has seen the case at the time of the accident and has observed its progress. It is unwise in severe trauma, to give a prognosis without bearing in mind the danger of a delayed detachment. If the contusion is severe, the patient should be informed, both for his future satisfaction and for our own protection, that a detachment may occur later on. In one of our cases, the detachment appeared as late as one and one-half years after the accident. It is not uncommon to see cases in which the first symptoms appear several months after the injury.

Four or five years ago, one of our patients, a dental student, was struck in the eye with a ball and a detachment of the retina of considerable area followed the accident. He was sent home to his father who is a physician. There he was put to bed and given repeated pilocarpin sweats. Last summer he had six-fifths vision and it was impossible to detect any serious change in the retina at the site of the former detachment. Pilocarpin sweats and rest immediately after the accident generally give much better results than later surgical treatment.

In the case which has just been presented, we have nothing to lose; therefore, the operation of posterior sclerotomy with retinal puncture and section of contracting bands in the vitreous seems to be a justifiable surgical procedure since this does in some cases give restoration of vision.

A CASE OF ECLAMPSIA TREATED BY VAGINAL CESAREAN SECTION.

GEORGE KAMPERMAN, M. D.

Department of Obstetrics and Gynecology.

The patient, Miss B., obstetric number 543, German, aged nineteen, was admitted into the University Maternity Hospital as an emergency case on Sunday, December 11, 1910, being six months pregnant. She had had twelve convulsions, the last one occurring just as she was brought into the hospital. The first convulsion had occurred eighteen hours previously, and prior to this she had felt well and there had been no premonitory symptoms. The first convulsion occurred without warning while she was up and around, and others followed at irregular intervals of from thirty minutes to two hours. Her attendants reported that there were periods between the convulsions during which she recognized

her friends but at the time of her entrance into the hospital she was completely unconscious. During these convulsions the body became rigid, with quick, short, clonic movements of the various muscles. The face became cyanotic, pupils dilated, and she frothed at the mouth.

Examination.—This showed the patient to be unconscious. She was a blonde of medium size. The skin was pale. Pupils were dilated. There was very slight edema of the ankles. The tongue was swollen and bleeding from recent injury. Heart and lungs were negative. Blood pressure was 160 (Faught's sphygmomanometer, four-inch arm band). The abdomen was distended above the pubes, the fundus reaching as high as the umbilicus. The fetus was not distinctly palpable. The fetal heart was heard in right lower quadrant; rate, forty-two per quarter minute.

A catheterized sample of urine when boiled became almost solid and addition of nitric acid intensified the precipitate. A drop of uncentrifuged urine showed numerous hyaline and granular casts. The sample obtained was too small for a complete analysis.

Diagnosis.—The diagnosis of eclampsia was made and because of the frequency of the convulsions it was decided to empty the uterus at once. No labor pains were present.

Operation.—Ether anesthesia; vaginal Cesarean section.—The vagina was dilated manually, after which the cervix was seized and pulled down with a vulsellum forceps, and a transverse incision made through the mucous membrane just below the vesicovaginal junction. The bladder was easily pushed up with a sponge. A transverse incision was also made in the mucous membrane just behind the cervix, and the mucous membrane separated from the cervix. The anterior cervix and uterine wall was then incised in the median line for a distance of about eight centimeters and the posterior wall was likewise incised for a distance of about six centimeters. The opening thus made was large enough to admit the hand. The membranes were ruptured and with the hand in the uterus a foot was seized and an internal podalic version performed and the child delivered. The child gasped several times but was not viable because of its prematurity. It was, however, well formed and measured thirty-one centimeters in length. The placenta was delivered manually. The incision in the uterus and vagina were sutured with catgut after the delivery of the placenta. Before leaving the operating table ten ounces of salt solution were injected under each breast.

Subsequent History.—The patient was put to bed in good condition, and there were no convulsions after the operation. She soon recovered from the anesthetic, and became much excited, being very hard to manage. During the following night she got up out of bed on three different occasions. Eliminative treatment was begun as early as possible after the operation. Two drops of croton oil were given as soon as she began to show signs of consciousness. Elimination from the skin was obtained by the application of heat. The day after the operation her mind began to clear, and in the second day she was perfectly rational. After this

the recovery was uneventful and the patient was able to leave the hospital in good condition on the fourteenth day after the operation, the cervix and vagina being well healed. Three days after the operation the albumin had entirely disappeared from the urine, and in four days the blood pressure had dropped to 122. The highest temperature after the operation was 100° on the fifth day.

After the patient became rational it was interesting to learn how little she recalled events just prior to her convulsions. The patient came to Ann Arbor in the afternoon, and her convulsions began suddenly that evening at about 6 o'clock. She remembers packing her suit case preparatory to coming to the city, but could not recall the fact that she had come here, and on regaining consciousness was surprised when told where she was. She did not know whether she had come here via the Michigan Central or the electric car. Neither could she recall where she had visited after reaching Ann Arbor.

The diagnosis is quite plain in this case. The only conditions to be seriously considered in a differential diagnosis are eclampsia and nephritis. No doubt many cases of nephritic convulsions occurring during pregnancy have been called eclampsia. The two conditions are often difficult to differentiate, and often some observation is necessary before a positive diagnosis can be made.

In the case reported there was no previous history suggestive of a nephritis, and her childhood had been usually free from infectious diseases. The almost complete absence of edema after having been in convulsions for eighteen hours would also argue against a nephritis. The blood pressure of 160, although raised, is not as high as in the average patient with uremic convulsions. The urea content of the urine passed during the first twenty-four hours in the hospital was low—only seven and eight-tenths grams as estimated with the Doremus ureometer. The rapid increase in urea as the condition of the patient improved was also significant. If the convulsions had been due to a nephritic condition one would hardly expect the urine to be absolutely free from albumin in three days. From a consideration of these observations it would seem that a nephritis could be well ruled out, and a diagnosis of true eclampsia could be established.

The diagnosis is of prognostic importance. In a nephritic patient it is reasonable to expect a recurrence of trouble with each succeeding pregnancy, while an eclamptic patient is less likely to have a recurrence. Williams contends that a patient can have a true eclampsia but once. This view has not as yet been generally accepted. However, there is no doubt that recurrences of convulsions during future pregnancies are less common after eclampsia than after nephritis.

The object of this report was not simply to report a case of eclampsia, but to call attention to vaginal Cesarean section as a treatment for this condition. The merits of this operation for eclampsia lie in the rapidity with which the uterus can be emptied, and in its freedom from shock and trauma.

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MEMOIRS.

CHEMISTRY OF THE CEREBROSPINAL FLUID.*

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INVESTIGATIONS of the cerebrospinal fluid may be classified under four headings—physical properties; cytology, bacteriology, and chemistry. Of these four it would be difficult to say which is the more important nor is it necessary for clinical purposes to settle this question since in most cases where the findings in the cerebrospinal fluid are of value in the diagnosis of disease of the central nervous system the conclusion reached will be based upon the condition present in all four.

The following abstract, based largely on observations from a large number of examinations made at the University Hospital, deals only with the chemical findings, the cytology and bacteriology being treated elsewhere.

The cerebrospinal fluid is obtained by lumbar puncture, the needle being introduced between the third and fourth or fourth and fifth lumbar vertebræ, a point well below the lowest portion of the spinal cord. As much as twenty cubic centimeters may be drawn from normal individuals without evil effects. The average amount usually withdrawn for clinical purposes is somewhat less. It is important to note the pressure of the spinal fluid; this may be determined accurately by means of a manometer or judged by the rate of flow from the needle. The pressure is high in certain conditions such as brain tumors, abscesses, et cetera. It is also high following traumatism to the brain, even though there is no hemorrhage or fracture of the skull. It is also important to note the

*Read before the Clinical Society of the University of Michigan, February 16, 1911.

color of the spinal fluid. Normally it is clear and colorless. In conditions of cerebral or spinal hemorrhage it would be stained a yellowish, or yellowish brown. In acute inflammations of the meninges, cerebrospinal meningitis, et cetera, the fluid is turbid, owing to the presence of pus cells. The specific gravity of the spinal fluid is about 1005; it varies slightly in different individuals but these variations probably have little clinical value. The freezing point is fairly constant at -53° centigrade. This lowered freezing point is probably due to the presence of sodium chlorid. The cerebrospinal fluid is slightly alkaline.

The constituent of the spinal fluid which has excited the most interest and which at present appears to have the greatest diagnostic importance is protein. This exists in the form of albumins, normally, and a slight proportion of globulin. The proportion of albumin in the normal individual is probably never over .5 parts per thousand. An increase in the amount of albumin is found in inflammatory conditions of all sorts and is also occasionally found in brain tumor. Various tests have been suggested for determining the relative amount of globulin. The one suggested by Nonne and Apelt, known as the Nonne-Apelt reaction, consists in adding a saturated solution of ammonium sulphate to an equal part of cerebrospinal fluid. An abnormal amount of globulin is present if the mixture becomes opalescent. This is described as "phase I" and, according to Nonne and Apelt, is present in paresis and tabes in a very high proportion of cases. It is also, however, present in many inflammatory conditions of the central nervous system. The other reaction, "phase II", is obtained by adding a few drops of acetic acid and boiling; this gives the albumin content. More recently, Noguchi has suggested a test which consists of adding two cubic centimeters of cerebrospinal fluid, five cubic centimeters of a ten per cent solution of butyric acid, boiling for one minute, then adding one cubic centimeter of normal sodium hydroxid solution and again boiling for one minute. The flocculent precipitate indicates an increase in euglobin which, according to Noguchi, is a specific test for tabes and paresis. More recent investigations have shown that a positive Noguchi reaction is also obtained from other, nonspecific diseases of the central nervous system such as brain tumor, et cetera. A rapid and delicate clinical test for excessive albumin has been described by Pandy. It consists of adding a few drops of the spinal fluid tested to an aqueous solution of carbolic acid, one to fifteen, a distinctly bluish white cloud indicating an increase in protein content, probably globulin. These tests are of great value in the differential diagnosis of inflammatory conditions of the central nervous system from functional disorders, with which they may be confounded. However, all signs of meningeal irritation may be absent in some cases of tabes. In trypanosomiasis there is found an increased globulin and nucleoproteid content in the spinal fluid and some increase has also been reported in diphtheritic paralysis, in uremic coma, and in brain tumor. In epilepsy, neurasthenia, pseudotabes, multiple sclerosis, et cetera, there is no increase in the globulin.

Next in importance to the protein in cerebrospinal fluid is the amount

of copper reducing substance. This substance is probably sugar, although various men have suggested that there may be some other reducing substance besides sugar. There is a certain normal relation between the quantity of sugar in the spinal fluid and in the blood, but the amount of sugar in both is increased in diabetes. In meningitis the amount of sugar is liable to be decidedly reduced and this applies also to syphilitic meningitis. An attempt has been made to diagnose between a tuberculous and meningococcic meningitis by the amount of sugar found in the cerebrospinal fluid but the findings of different observers are somewhat contradictory on this point. Beta-oxybutyric acid, diacetic acid and acetone have been found in the cerebrospinal fluid in cases of diabetes, being present even when these substances are not present in the urine.

Urea is a normal constituent of the cerebrospinal fluid but normally is in very small amount. It is increased in nephritis especially where there is uremic convulsions or coma. At it is not increased in cerebral arteriosclerosis, it affords a very valuable means of differential diagnosis. Mallard and Froment conclude from their studies that the presence of urea in notable quantities in the cerebrospinal fluid is always indicative of renal insufficiency and is very valuable in the diagnosis of uremia from other states of coma or convulsions.

In eclampsia, Lockman found sarcolactic acid present in the cerebrospinal fluid after the patient had had two attacks. Its presence may have something to do with the causation of the convulsions.

Bile pigments are occasionally found in the cerebrospinal fluid. They are not, as a rule, found there in ordinary icterus unless the choroid plexus is in some way injured. In cases of meningeal hemorrhage bile pigment may be formed from the blood without the intervention of the liver and be present in the spinal fluid.

Halliburton found in the normal cerebrospinal fluid a trace of cholin. Most observers, however, have held it to be of pathologic import. Older studies in this direction were made by the platinum chlorid method but more recent tests for cholin as, for instance, the periodid tests, as described by Rosenheim, show that cholin does not appear in the cerebrospinal fluid, even in pathologic conditions. As Rosenheim's test is very delicate and much more accurate than the former methods, it must be concluded that the presence of cholin described by some authors was due to an error in technic.

Recently Cushing has attempted to show that the cerebrospinal fluid contains a substance that is secreted by the pituitary glands. His method was to concentrate this fluid and inject it into animals. The symptoms resulting were supposed to be due to pituitin. It seems more likely, however, that they were due to a concentrated salt solution. Normal cerebrospinal fluid is nontoxic to animals.

Although the choroid plexus is impermeable for many substances in health, it is not so for all. Potassium iodid and potassium ferrocyanid may be found in the cerebrospinal fluid after ingestion, and also the lithium salts. Crowe has shown that urotropin administered internally appar-

ently reaches the cerebrospinal fluid in quantity large enough to have therapeutic value as an antiseptic.

During the chloroform anesthetization the chloroform is present in the cerebrospinal fluid in fairly large amount. It has been suggested that in chloroform poisoning a rapid way to withdraw the poison from the nerve centers would be by lumbar puncture.

Among the inorganic constituents, the most important is sodium chlorid, present in the proportion of about seven-tenths per cent. In tuberculous meningitis the proportion is somewhat lower, whereas in uremia it has been found to be increased. The proportion of extractive varies, the normal variations being from nine to thirteen parts per thousand. It has not been determined that the variations have any clinical significance. The quality of ash remains the same under all circumstances, apparently, and consists of the oxides of calcium, magnesium, sodium, potassium, and phosphorus.

I cannot go more into detail because I do not want to exceed the time limit. The bacteriology and cytology are very important but are valuable only in certain cases, whereas, the chemistry of the cerebrospinal fluid may give valuable diagnostic data in a great many conditions.

A CASE OF ACUTE MERCURY POISONING: AUTOPSY; DEMONSTRATION OF SPECIMENS.*

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INSTRUCTOR IN PATHOLOGY IN THE UNIVERSITY OF MICHIGAN.

DURING the past few years there have been reported a great many cases of serious and often fatal poisoning as a consequence of administration of bichlorid of mercury per vaginam. In some instances the drug has been given by the physician in the form of a douche for therapeutic purposes. In the majority of cases, however, the drug has been administered by the patient herself, and not a few times it has been taken, not as a douche, but in the form of the tablet inserted within the vagina. In these cases the reason for using the drug has been, almost without exception, to prevent conception.

Such a case recently was brought to the Pathological Laboratory of the University of Michigan for autopsy. The history of the case is as follows:

Mrs. L. S., married, aged thirty years, entered the hospital October 13, 1910. She was unable to give any history, the swollen and ulcerated condition of her tongue and pharynx rendering any attempt to speak extremely painful. From her mouth there escaped a large quantity of blood stained mucus and occasionally a blood-tinged vomitus. The abdomen was distended and all attempts at palpation or percussion were resented by the patient on account of pain. The stools were frequent, contained much mucus, and were blood-tinged. The urine was small in amount. According to the statement of her husband, she had taken a vaginal douche of bichlorid of mercury in strength of one to one thousand, three days

*Read before the Clinical Society of the University of Michigan, February 16, 1911.

previous to being brought to the hospital. According to the hospital record of her case, she is credited with having used three grains of bichlorid of mercury in the douche. However, circumstantial evidence tends to show that not only did she use more than that quantity of the drug upon this occasion, but she had probably made use of the same measures on previous occasions. It was admitted that the treatment was for the purpose of preventing conception.

With this history and in this condition she was admitted to the hospital, October 13, 1910. She was in the hospital ten days, during which time there was no improvement in her condition. According to the record, she was treated by pilocarpin and other drugs to increase elimination. She had complete suppression of urine the last four days and died October 23, 1910. The body was brought to the Pathological Laboratory immediately and the autopsy performed by Doctor Warthin.

The official autopsy protocol of the case is as follows:

Name, L. S. Sex, female; aged thirty years; American; married; housewife. Length, one hundred and sixty-five centimeters; moderately slender build; epigastric angle a right angle; abdomen distended two finger breadths above level of the ribs. The body is well haired, especially over the pubes. Rigor mortis is marked in chin and lower extremities. Panniculus is scanty over abdomen, fair in extremities. Edema, only a trace over ankles. Body is still warm. There is moderate purplish hypostasis over back. Other points in general external examinations are negative. Section of the thorax and abdomen shows as follows: *Panniculus* bright orange color, dry, anemic, few bleeding points. *Pectoral muscles* very edematous. *Abdominal muscles* rather pale, dry and tear easily. No fluid or free gas in abdominal cavity. Very small amount of clear fluid in pelvis. *Liver* in median line two finger breadths below ensiform, in the right nipple line at edge of ribs. *Spleen* rather small, in normal position. *Bladder* distended, four finger breadths above pubes. No hemorrhage into peritoneal cavity. *Stomach* in normal location. *Appendix* free. *Omentum* rolled up above the level of the umbilicus, poor in fat, little edema. *Cecum*, *ascending* and *transverse colon* distended. *Splenic flexure*, *descending colon* and *small intestines* collapsed.

Right mamma shows a small extravasation, localized edema, a small abscess, dilated ducts filled with a cloudy, turbid fluid. *Left mamma*, on section, streams with slightly turbid fluid and is markedly edematous. In both mammæ the gland tissue is hyperplastic and presents the appearance of a functionally active gland. The *sternum* is soft, apparently some decalcification. There is no free gas or fluid in the pleural cavity. *Apex of heart* is at fourth rib, inside nipple line. *Left lung* is adherent by a few easily torn adhesions at the apex. *Right lung* has a few, easily torn, old adhesions posteriorly. *Anterior mediastinal fat* is small in amount and edematous. *Thymic fat* is edematous and contains small lymph nodules. *Pericardial tension* is increased, with about two teaspoonfuls of bloody fluid in pericardial sac. Parietal pericardium is thin, stretched, otherwise negative.

Even under favorable conditions this formidable disease requires much patience and endurance on both the part of physician and patient, for as many as a dozen operations are frequently necessary before a cure is effected, relapses being very frequent and persistent. So much so in fact that Hortsmann is able to report only six and six-tenths per cent of cures from his clinic, Uhthoff seven and five-tenths per cent, while Deutschmann by his operation claims thirty-one and one-tenth per cent of cures.

The treatment aims at evacuation of the subretinal fluid and replacement of the retina, and is both medical and surgical. Among the former are rest in bed, bandaging, atropin, dionin, purgatives, diaphoresis, subconjunctival injections of salt solution and of mercurial preparations. Surgically the aim is to cause a hyperemia with the formation of bands of adhesions between the retina and choroid, while at the time of operation the subretinal fluid is **evacuated**.

Among the methods are scleral cauterization and scleral puncture. These do not pass through the retina. Others, as the Deutschmann operation, make a long sweep through the vitreous to cut any bands that may be present and which might prevent a reattachment taking place. Muller proposes a resection of a portion of the sclera, claiming that the detachment is due to a disproportion between the shrinking vitreous and the ocular envelopes and reports three cases cured at the end of ten, eleven, and fifteen months.

The case presented from the Ophthalmic clinic is as follows: H. W. M., aged thirty-one, married, American, farmer. General health good. No previous eye disease nor injury until present trouble began when he was struck in the right eye in October, 1909, by a tooth from a revolving circular saw. After this accident the eye became inflamed and red but soon cleared up. In the winter the patient noticed that he could not see so well with this eye, and came to the University Hospital, September 24, 1910.

Vision: Oculus dextra was 8/200; oculus sinistra 15/30.

The upper lid, oculus dextra, shows a scar, the result of injury.

Tension: Oculus dextra, normal, twenty-two
millimeters of mercury.

Oculus sinistra, normal twenty-two
millimeters of mercury.

Blood pressure,
115.

Pupils equal. Ocular dextra reacts to direct slightly.

Vitreous is full of web-like and fine opacities.

Disc hazy, edges blurred and possibly swollen one diopter.

Retina, nasally and up is edematous. Temporally and up, and down, and down and temporarily, it is thrown into folds which extend through macular region to the periphery. Immediately below the disc the parallax displacement of vessels is marked but two discs diameters, below is an extensive detachment of retina consisting of three or four rounded folds running anteroposteriorly, very tremulous and extending to the periphery.

Diagnosis.—Detachment of retina. Not active.

Treatment.—Posterior sclerotomy was advised but patient left the hospital and did not return until December 12, when a posterior sclerotomy was done, the conjunctiva being dissected from the sclera below and temporally, the puncture extending through the retina and into the vitreous. The knife was then turned at right angles to allow the subretinal fluid to escape, after which it was withdrawn and the conjunctiva sutured over the wound. About ten minims were evacuated. The patient was put to bed, atropin instilled and eyes bandaged. Purgatives were administered and free diaphoresis obtained by one-eighth grain of pilocarpin and hot water bottles. This was repeated every other day for one week.

The condition not showing much improvement the operation was repeated on January 4, 1911. On January 6, the retina was not completely replaced but showed marked improvement. The whole fundus was red and vessels were of normal appearance. On movement of the eye the retina could be seen to move, but very much less than formerly, and the gray ashy appearance was replaced by that of a nearly normal fundus. At this time the patient says his vision is better and the field as tested with hand movements is very greatly enlarged.

On January 24, a third operation similar to the first two was done with escape of several drops of a thin watery fluid, since which time the patient has been in bed.

It is too early to predict the outcome. When we remember that the greatest per cent of recoveries is thirty-one and one-tenth it would seem wise to give a guarded prognosis. And as relapses have occurred four years after an apparent cure this should make one still more conservative in predicting a favorable outcome, but at present the case seems quite hopeful of ultimate recovery.

DISCUSSION.

DOCTOR WALTER R. PARKER: Surgically these cases of detached retina belong to a rather large group of cases in which the results are better immediately after operation than at a subsequent examination. Very often the retina will go back immediately after operation, only to be redetached later. I have seen a case in which the patient would have a fair vision when lying on his back and be practically blind when standing.

The purpose of the operation is, first, to restore the retina to its proper place, and, secondly, to secure it in this position. The first is accomplished by tapping the sclera and drawing off the subretinal fluid; the second by puncturing the retina and, if possible, dividing any adhesive bands that may hold the retina in its false position. The more recent the detachment the more successful the operation.

While the result, in the majority of cases, is far from perfect, good results are obtained often enough to warrant surgical interference. I have a patient on whom I operated five years ago, who still has almost a perfect field of vision. The operation may be repeated several times. In the case reported, I operated three times. The fields are greatly increased,

but we must withhold our prognosis for a considerable time. Without an operation this case would certainly have been progressively bad.

Recent cases may be treated by rest in bed, pilocarpin sweats, and salines. Failing in this I believe we should resort to operative procedure.

DOCTOR GEORGE SLOCUM: In connection with the discussion of this case one might mention a few interesting features of those cases of detachment of the retina following trauma.

In such cases, a practical point for us to remember in the prognosis is that the detachment is often a long time delayed in showing itself. Whether the detachment occurs in small amount immediately following the contusion and later on increases or whether it is a delayed result of the trauma, it is hard to say unless one has seen the case at the time of the accident and has observed its progress. It is unwise in severe trauma, to give a prognosis without bearing in mind the danger of a delayed detachment. If the contusion is severe, the patient should be informed, both for his future satisfaction and for our own protection, that a detachment may occur later on. In one of our cases, the detachment appeared as late as one and one-half years after the accident. It is not uncommon to see cases in which the first symptoms appear several months after the injury.

Four or five years ago, one of our patients, a dental student, was struck in the eye with a ball and a detachment of the retina of considerable area followed the accident. He was sent home to his father who is a physician. There he was put to bed and given repeated pilocarpin sweats. Last summer he had six-fifths vision and it was impossible to detect any serious change in the retina at the site of the former detachment. Pilocarpin sweats and rest immediately after the accident generally give much better results than later surgical treatment.

In the case which has just been presented, we have nothing to lose; therefore, the operation of posterior sclerotomy with retinal puncture and section of contracting bands in the vitreous seems to be a justifiable surgical procedure since this does in some cases give restoration of vision.

A CASE OF ECLAMPSIA TREATED BY VAGINAL CESAREAN SECTION.

GEORGE KAMPERMAN, M. D.

Department of Obstetrics and Gynecology.

The patient, Miss B., obstetric number 543, German, aged nineteen, was admitted into the University Maternity Hospital as an emergency case on Sunday, December 11, 1910, being six months pregnant. She had had twelve convulsions, the last one occurring just as she was brought into the hospital. The first convulsion had occurred eighteen hours previously, and prior to this she had felt well and there had been no premonitory symptoms. The first convulsion occurred without warning while she was up and around, and others followed at irregular intervals of from thirty minutes to two hours. Her attendants reported that there were periods between the convulsions during which she recognized

her friends but at the time of her entrance into the hospital she was completely unconscious. During these convulsions the body became rigid, with quick, short, clonic movements of the various muscles. The face became cyanotic, pupils dilated, and she frothed at the mouth.

Examination.—This showed the patient to be unconscious. She was a blonde of medium size. The skin was pale. Pupils were dilated. There was very slight edema of the ankles. The tongue was swollen and bleeding from recent injury. Heart and lungs were negative. Blood pressure was 160 (Faught's sphygmomanometer, four-inch arm band). The abdomen was distended above the pubes, the fundus reaching as high as the umbilicus. The fetus was not distinctly palpable. The fetal heart was heard in right lower quadrant; rate, forty-two per quarter minute.

A catheterized sample of urine when boiled became almost solid and addition of nitric acid intensified the precipitate. A drop of uncentrifuged urine showed numerous hyaline and granular casts. The sample obtained was too small for a complete analysis.

Diagnosis.—The diagnosis of eclampsia was made and because of the frequency of the convulsions it was decided to empty the uterus at once. No labor pains were present.

Operation.—Ether anesthesia; vaginal Cesarean section.—The vagina was dilated manually, after which the cervix was seized and pulled down with a vulsellum forceps, and a transverse incision made through the mucous membrane just below the vesicovaginal junction. The bladder was easily pushed up with a sponge. A transverse incision was also made in the mucous membrane just behind the cervix, and the mucous membrane separated from the cervix. The anterior cervix and uterine wall was then incised in the median line for a distance of about eight centimeters and the posterior wall was likewise incised for a distance of about six centimeters. The opening thus made was large enough to admit the hand. The membranes were ruptured and with the hand in the uterus a foot was seized and an internal podalic version performed and the child delivered. The child gasped several times but was not viable because of its prematurity. It was, however, well formed and measured thirty-one centimeters in length. The placenta was delivered manually. The incision in the uterus and vagina were sutured with catgut after the delivery of the placenta. Before leaving the operating table ten ounces of salt solution were injected under each breast.

Subsequent History.—The patient was put to bed in good condition, and there were no convulsions after the operation. She soon recovered from the anesthetic, and became much excited, being very hard to manage. During the following night she got up out of bed on three different occasions. Eliminative treatment was begun as early as possible after the operation. Two drops of croton oil were given as soon as she began to show signs of consciousness. Elimination from the skin was obtained by the application of heat. The day after the operation her mind began to clear, and in the second day she was perfectly rational. After this

rode on horseback over the Eastern pass, in order to visit the South side of the mountain. Our guide brought us to a narrow path which led along a sharp precipitous slope high above the valley. Our caravan, consisting of six riders and two pack horses, traveled in a long line along the mountain. There it was that the hardness of hearing of Schliemann for the first time manifested itself to such a degree that it was almost impossible for me to make myself understood by shouting at him. He also began to complain of pain in the ear. We arrived at Zeituenlue rather late in the evening. The next morning I examined his ear, and found such a great swelling that the meatus appeared totally occluded. To my regret, I did not have any surgical instruments with me, so that a more thorough examination was impossible. We restricted ourselves to cleansing the meatus by syringing with warm water. This alleviated his suffering. Not until April 18 did we arrive again in Hissarlik. There we found that the swelling consisted mainly of a bony tumor, and that a similar tumor was also in the other ear, where a scar from the previous operation could still be recognized. There was no doubt that it was a real tumor of the bone, a so-called exostosis. It so happens that I have extensively written about the exostoses of the external auditory meatus in a special treatise which has been printed in the transactions of our Academy of Science. This was done at the occasion of an observation of the skulls of the old inhabitants of Peru. While exostoses of this nature are a rare occurrence in Europe, they were astonishingly frequently found with the old Peruvian people, so that one has even raised the question whether an aristocratic class, called Orejones by the Spaniards, was not constituted of the privileged bearers of this anomaly. I have tried to show at that time that this kind of exostosis represents a certain disease of development comparable to certain exostoses of the long bones of the extremities which are better known, and that they reach in their beginning to the early time of life. The peculiar seat of the exostosis in Schliemann's ear, the symmetrical existence on both sides, the fact that at least one of them had been proven to be present in 1864, did not allow any doubt, in my opinion, that an old condition existed with him which was aggravated through a new catarrh, the secretion of which had obstructed the otherwise still permeable portion of the canal. I could not hide from Schliemann the fact that a removal of the exostosis could only be accomplished by a difficult operation. Therefore, I advised him to wait for the disappearance of the catarrh by using suitable means, and to submit to the operation only when absolutely necessary.

* * * "I scarcely had arrived in Constantinople when he again reported that the hardness of hearing persisted, and asked for the name of an aurist. I had scarcely returned to Berlin when the news came that he had been in Constantinople and that the aurist was willing to undertake the operation. My warning, however, had the effect that Schliemann postponed the operation for the present, but he asked for the name of the best aurist in Germany.

"He remained in the Troas until the end of his excavations in the beginning of August, and remained in Athens till November, where he

saw his wife and children again after a long separation. Then he could not stand it any longer. On November 12 he wrote me from Halle, 'Long Live Asclepius. Professor 'Schwartz declares the operation can be done and will perform it tomorrow on both ears.' It was done, and when he arrived in Berlin December 13 he brought me two boxes with the known ivory-hard bony masses which had been chiseled out of his ear canals. * * * After the operation he suffered from such intense pain in his left ear that he asked, 'How can I thus excavate Troja?' Also, speaking caused him much pain. The wound behind the auricle healed quickly, and on December 6 he reported, 'To my great joy, I feel better since yesterday evening, and I could sleep for the first time. Today no pain, and I hope to be able to travel soon. Today I could even go out; it was of great benefit to me.' Indeed, he was allowed to leave on December 12. He traveled by the way of Leipsic, where he consulted with his publisher, Mr. Brockhaus, and came to Berlin. To our regret, his hardness of hearing increased again. He had blown iodoform powder in great quantities into the ear canal, and a dry mass occluded the posterior portion of the ear canal, of which only a small portion could be removed without difficulty. As he intended to leave for Paris December 14 at noon, I advised him to resort temporarily to softening means. His condition was, otherwise, apparently satisfactory. He had no pain to speak of, no fever. We visited together his collection in the museum of people's-study (Völker Kunde.), the rearrangement of which met with his highest approval. Then he took breakfast with me with good appetite, was joyous, sympathetic and attentive, like at the best in his best days, and when we parted he called to me, 'Our next journey will be to the Canares.' He had had this thought for several months.

"Then came a last letter from Paris. It was written December 17 in the Grand Hotel, in which we had enjoyable times during the fair, 1889. Schliemann wrote that he consulted an aurist and that this latter had removed from the depth of the ear a 'mass' of bones, besides iodoform, that he heard with his right ear, and that he hoped that the left one would also recover. He intended to leave for Naples on the evening of the same day, in order to examine, as he had already told me in Berlin, the new acquisitions of the museums, especially the last excavations of Pompeii. Since that time I did not hear from him directly. The first news came through a telegram by the way of London; it reported his death, which occurred on the 26th. The newspapers and letters afterwards brought particulars. According to these news, there does not seem to exist a doubt that an inflammatory process extended from the affected ear inwardly toward the brain, perhaps also to one of the large veins of the posterior cranial fossa. At any rate, the bone was extensively deceased, as was shown when the mastoid process was opened on December 25. * * * The great sympathy which the death of Schliemann has created everywhere may furnish an excuse for giving such a detailed account of the last suffering of the friend."

TRANSACTIONS.

CLINICAL SOCIETY OF THE UNIVERSITY OF MICHIGAN.

STATED MEETING, FEBRUARY 16, 1911.

THE PRESIDENT, REUBEN PETERSON, M. D., IN THE CHAIR.
REPORTED BY JOHN WILLIAM KEATING, M. D., SECRETARY.

READING OF PAPERS.

CHEMISTRY OF THE CEREBROSPINAL FLUID.

DOCTOR CARL D. CAMP read a paper bearing this title. (See page 81).

A CASE OF ACUTE MERCURY POISONING.

DOCTOR ROBERT L. DIXON read a paper on this subject. (See page 84).

DISCUSSION.

DOCTOR NEAL N. WOOD: In this connection I would like to call attention to a report published in the *Journal of the American Medical Association* last spring, where a seven-grain tablet was inserted in the vagina to produce an abortion, and in which death resulted a little more promptly than in this case. The general findings at autopsy were very similar. The symptoms, however, were more acute.

REPORTS OF CASES.

A CASE OF FECAL FISTULA AND A NUMBER OF SECONDARY HEMORRHAGES FOLLOWING APPENDECTOMY.

JOHN H. PETTIS, M. D.
Department of Surgery.

The patient is a male, aged twenty-eight. He entered the hospital on the morning of October 13, 1910. He came to the hospital because of severe abdominal pain and vomiting. He is a farmer of good habits and of good family history. He has been married eight years and has four children, all of whom are living and well. Patient himself has always been well. No history of gonorrhea or syphilis.

His present trouble began nine days before coming to the hospital, when he had severe pain in the lower abdomen, with nausea and vomiting. The trouble gradually grew worse until he entered the hospital. The patient stated that he had been up and about most of the time and did not consider his condition serious.

On entering the hospital the patient's temperature was 101°, pulse 106, respiration 24; leukocyte count 18,500; urine negative; heart and lungs negative. The patient was listless, his complexion was muddy, his features were drawn and he appeared very ill indeed. His abdomen was considerably distended, and very tender over the right iliac region; right rectus tense and board-like. No distinct tumor mass could be made out. A diagnosis of acute appendicitis was made and the patient prepared for immediate operation, which occurred at 4 P. M. of the same day.

An incision three and one-half inches long was made through the right rectus. On opening the abdominal cavity a quantity of dark, foul smell-

ing liquid escaped. This fluid was carefully removed by means of gauze wipes and a very careful search for the appendix made. A piece of necrotic and gangrenous tissue was removed which was evidently a portion of the appendix which had sloughed away. A loop of intestine which was thought to be the caput was brought into the wound, but on account of the adhesions it could not be positively identified. A portion of this bowel was found to be necrotic and in this necrotic area was a small opening into the lumen. The necrotic area was invaginated as well as possible, after which a piece of omentum was sutured over the area. While manipulating the bowel to effect its closure a brisk hemorrhage occurred from an artery which was thought to be one of the larger mesenteric. The bleeding point was found with considerable difficulty after a rather alarming hemorrhage, and was tied, after which no more hemorrhage occurred. The wound was closed by interrupted through-and-through silkwormgut sutures. The peritoneum and fascia were brought together with catgut, and the superficial layers closed with silkwormgut. A strip of gauze and a rubber tube were left in the wound for drainage.

The patient stood the operation well, pulse being 124 and of good quality when the operation was completed. The patient was well recovered from the anesthetic by 10 o'clock that evening when his pulse was 98 and was full and strong, temperature normal. On the following day the patient was placed in the Fowler position and slow saline started. He was fairly comfortable, had two movements of the bowels during the day, which the orderly described as large, liquid-brown stools. His highest temperature during the day was at 2 P. M. when it was 102.2°, pulse 130, respiration 36. The dressings were very foul and contained a large amount of pus but no feces. On the second day the patient's condition was somewhat improved. The temperature did not go so high, the pulse was slower and of much better quality. The gauze drain was removed; no fecal discharge. On the third day the patient continued to improve. Highest temperature 101.4°, highest pulse 118. The dressings, however, showed considerable fecal matter. Patient was now taking liquid nourishment with relish. From the third to the ninth day there was nothing of note except that the fecal discharge increased in amount. In fact, practically all the discharge from the bowel came through the wound, the bowels moving but once in the normal way. The patient felt fairly well; his pulse and temperature slowly approached normal and his general condition seemed quite favorable. The stitches were removed on the eighth day. The wound gaped considerably, only the upper portion having healed.

In the forenoon of the ninth day patient had a formed stool. In the afternoon of that day he complained of a desire to cough but refrained from doing so as he said the effort caused severe pain in the wound. At 1 P. M. the patient told the nurse he felt warm fluid running down his side. An examination disclosed the fact that the dressings were blood-soaked and that blood was running down the patient's side. The intern, upon being called, immediately removed the dressings, packed the wound, and put on a firm compress. The patient's pulse was but little affected by the hemorrhage. That evening the pads were well soaked but there

Postoperative thrombophlebitis is apt to give the patient considerable inconvenience for years after the operation. At first very painful, the pain and soreness soon subside, but the swelling and edema may persist for years. It is not an uncommon experience to receive letters from patients who have suffered from thrombophlebitis in the hospital, years after the operation saying that the leg still causes them inconvenience and that they still have to wear a bandage. Thus our prognosis should be guarded in these cases.

DEMONSTRATION OF TWO BRAIN TUMORS.

ALBERT M. BARRETT, M. D.

Department of Psychiatry.

The first brain I desire to demonstrate shows a large tumor involving the choroid plexus of the fourth ventricle. The specimen is from a man who died in one of the State hospitals for the insane at the age of forty. At about fifteen years of age he had some sort of mental disorder which brought about his commitment to an insane hospital. His condition seemed to be one of a mild type of depression and he was regarded as recovered after one year's treatment.

He again came into the same hospital when he was twenty-five. Then he was dull and showed a considerable defect in memory. His speech was slurring and ataxic. His eyesight was much impaired; this progressively grew worse and at the time of his death he was almost blind. Soon after his admission, there occurred a discharge of cerebrospinal fluid from his nose. This passed from the nose in drops, about a second apart. When recumbent there was a steady flow of fluid back into the pharynx. He failed progressively and died eleven months after his admission.

At the autopsy the brain showed evidences of increased intracranial pressure. The cribriform plate of the ethmoid was crowded so that the brain membranes bulged downward into the nasal cavity. In places the floor of the anterior fossa was eroded. When the formalin-hardened brain was sectioned, there was found a large tumor mass which involved the choroid plexus of the fourth ventricle. In the gross it had a cauliflower appearance, or like densely massed small blood-vessels. It was irregular in outline, extending laterally into the wings of the ventricle, forward into the aqueduct and backward into the central canal of the medulla. It thus had greatly widened the ventricles and canal. All of its surfaces were free. The third and lateral ventricles were much dilated. In size it measured twenty-five by thirty-five millimeters. Sections through the tumor show it to be made up of densely massed loops and cross sections of tubes whose walls are a single layer of epithelium. In appearance they closely resemble the papillæ of the choroid plexus. In the center of each passes a blood-vessel, or in some of the larger tubes there may be several. Many of the tubes are distended into cysts. These and the wide tubes contain a homogeneous material like a coagulated fluid, in which are scattered lymphoid nuclei and rarely polynuclear leukocytes. In many tubes there is a considerable increase of connective tissue.

In general the structure seems to be that of a greatly overgrown

choroid plexus, and corresponds to what has been described as a papillary epithelioma. From the glandular arrangement of the epithelium such tumors have been sometimes called adenomata.

The position of the tumor is such as to produce a marked degree of internal hydrocephalus, as was evidenced by the much widened ventricles. The flow of fluid into the nose must have been occasioned by the erosion of the tissues by pressure from the dilated ventricles.

* * *

The second tumor is a diffuse invasion of the pia mater of the brain by a diffuse gummatous tumor.

This specimen is from the brain of a man who died in one of the State Hospitals for the Insane at the age of forty years. Very little was known about him previous to his admission to the hospital in June, 1910. For a few months preceding this he had been gradually becoming deranged in his mind. He was depressed and suspicious, and held delusions that he had been deserted by his family and friends. His physical condition had rapidly weakened, and at the time of his admission he was moved about in a wheeled chair. The day following his admission he was much excited and there were twitchings and jerkings of the muscles. Death occurred three weeks after his admission.

The chief autopsy findings centered in the condition of the brain. After this had been hardened in formalin the pia mater of the entire brain and over the cerebellum was found thickened and opaque. It had a gelatinous appearance and gave the impression that there was present a diffuse purulent leptomeningitis. Longitudinal sections through the brain showed a large tumor lying in the white substance of the right temporooccipital region. In size this measured 40 by 38 millimeters. To the left the tumor had pushed into the posterior horn of the lateral ventricle, completely filling it. Elsewhere the tumor was differentiated from the surrounding brain substance by its darker color and its softer consistency. Close to the left posterior corpora quadrigemina there was a small superficial yellow softening.

Histologic examination of the tumor in the temporooccipital region shows it to be a cellular glioma with some degeneration of its structure and an infiltration of the area immediately surrounding the tumor with bands and groups of glia cells. Several blood-vessels passing through the tumor show the lymph spaces of the vessel wall packed with glia cells. The space between the pia mater and the brain surface is filled with neuroglia cells. In form and many characteristics they correspond to the cells present in the tumor and leave no doubt as to their being glia cells. They follow the blood-vessels which extend down from the pia mater and lie surrounding the vessel and in the vessel wall. The pia over the entire brain showed this same condition. The glia cells were particularly numerous in the pia of the cerebellum and that surrounding the pons and medulla. Nowhere do the cells directly invade the brain substance from the pia mater. But in the substance of the pons, just below the posterior corpora quadrigemina, there is a small cut in which the blood-

vessels show numerous glia cells in their walls. And from them there are several small extensions of glia cells cut away from the vessels forming a small collection of glia cells which must be a metastatic tumor.

The condition present in this case is a glioma of the central white substance of the right temporooccipital lobe, with diffuse involvement of the pia mater and metastasis into the pons by way of the lymph spaces of the blood-vessels. It is difficult to determine how the pia became involved. Three different ways seem possible for this to have occurred. (1) A direct breaking through of the tumor into the subpial space. (2) Invasion of the pia by way of lymph spaces of the blood-vessels, which primarily became involved as they passed through the tumor in the brain substance. (3) Involvement of the choroid plexus of the right lateral ventricle, which was in close proximity and in part surrounded by the tumor; from this the tumor cells passed into the lymph spaces of the pia mater.

Without being able to absolutely determine this point it seems more likely that the latter route was the one followed, as the choroid plexus was so extensively adherent to the tumor; and several vessels undoubtedly of the choroid plexus, were entirely surrounded by points of the tumor.

Gliomata of the pia mater of the brain are rare tumors. We have been able to find but few reports of their occurrence. Gliomatous tumors involving the pia of the cord have been more frequently observed. It is generally acknowledged that they may be more frequent than the reported instances would indicate, it being at least probable that certain tumors described as diffuse sarcomas of the pia mater might, by closer differentiation, belong to this class of tumors.

DISCUSSION.

DOCTOR CARL D. CAMP: From a pathologic point of view these cases are interesting as they are also from the clinical side. There must be quite a number of similar cases around the country, in insane asylums, that are undiagnosed. In the first case it is interesting to know that he had symptoms so long before death and that these symptoms apparently disappeared and then returned a short time before death. Cases similar to the second case have been diagnosed from the examination of the cerebrospinal fluid.

DEMONSTRATION OF TWO PATIENTS WHO HAVE RECEIVED THE SALFARSAN TREATMENT.

JAMES F. BREAKEY, M. D.

Department of Dermatology.

This first patient I wish to show you is married, aged thirty-eight; family and early history are practically negative. She first entered the hospital May 26, 1909, at which time she gave a history of trouble originating the preceding July or August. There was some ear trouble, then an ulcer developed in front of the right ear which continued open for some time, at least six or eight months. In September, 1908, a "boil" started on the left thigh. This persisted and grew in size up to the time of her admission in May, 1909. At that time there was a deep ulcer as large as the palm of the hand. She was immediately put upon a

mixed treatment of iodides and mercury and discharged October 22, 1909, cured, so far as the ulcer was concerned. This patient serves to demonstrate not only the action of salvarsan, but also the action of the iodid and mercury on the same patient. After her discharge from the hospital she discontinued further treatment and on December 17, 1910, returned with large deep ulcers on the mons veneris, and also ulcers on the nose and left forehead. There was a positive Wassermann. For six weeks she had hypodermic injections of the succinamid of mercury, under which treatment the ulcers on the nose and forehead entirely healed. The ulcers on the pubes, however, made no satisfactory progress, if anything, getting larger. February 4, six-tenths of a gram of salvarsan was introduced intravenously. While exhibiting the symptoms of arsenical poisoning, no improvement in the ulcer has followed the injection.

* * *

This second patient is aged fifty-six, and married. As in the preceding case, there is no clear history of infection. She has two children, both living and healthy, thirty-five and thirty-one years of age. She has had two miscarriages. Her present trouble began eleven or twelve years ago, when she noticed a small lump about the size of a pea on the buttock. This gradually grew and broke down, while similar lesions appeared on the right knee, on the shoulder, and under the breast. Six years ago she had the ulcer on the buttock curetted. This improved, but in four weeks' time was followed by the appearance of a mass on the left foot the size of a hen's egg. A specimen removed from this was reported to have been diagnosed as a rodent ulcer. The process extended and finally the entire foot was involved. The condition was now called tuberculous and the leg was amputated in the upper third, one year ago. Ulcers then appeared on the left thigh. Last April hard masses appeared on the forehead and submental region, broke down, and ulcerated. She now shows a large indolent ulcer on the buttock the size of a dollar, and an ulcer on the left thigh, while the entire forehead is covered by crusts and ulcerated masses. There is also a submental ulcer and ulcers on the left shoulder. This patient also was given salvarsan intravenously. She showed no marked reaction, in fact no reaction at all. The first patient was nauseated for a period of two or three days. The temperature charts in these cases are not of particular interest. In some cases, however, instead of the typical reaction we have had a subnormal temperature lasting from twenty-four to thirty-six hours. The second patient, while there is no reaction, is showing very considerable improvement in all the lesions. The first patient, as before stated, has shown no particular improvement in the ulcer.

Salvarsan is not in all cases the remarkable specific that it is claimed to be. These cases serve also to contrast its action. In the first case I am sure there were as quick results with mercury and iodid treatment as resulted from the salvarsan, without any bad effect accompanying the use

of the former. In the case of the second patient, we are obtaining better therapeutic results with the salvarsan.

DISCUSSION.

DOCTOR JAMES G. CUMMING: These two patients give a Wassermann reaction, or a modification of the original procedure. Instead of using the blood serum of a rabbit immunized to goat red blood corpuscles we use the serum obtained from a rabbit which has received injections of human red blood cells.

It would be interesting to follow up these cases to see whether the injection of salvarsan breaks down this reaction. I am inclined to believe that it does not. Theoretically, it should not have any influence in the destruction of the active ferment which is responsible for the serum test. Of course, we have two elements to consider in these cases; the organism, which the salvarsan destroys, and the ferment or immune bodies, which are probably not attacked by the salvarsan. If there is a persistence of immune bodies the serum reaction must continue positive.

It is doubtful whether salvarsan breaks down the ferment and destroys the acquired immunity, but I have tested four cases recently, which have received salvarsan treatment and all of these continue to give positive serum tests. This compound of course destroys the organism, in a way sterilizing the body, but I do not think that it has any influence whatsoever on the specific ferment which is responsible for the serum test. I think we will eventually find that individuals giving a positive test previous to this kind of treatment will continue to give the same reaction for a considerable time after apparent cure.

I would like to follow these two cases in particular and see how they turn out with regard to this specific test.

DOCTOR BREakey (closing the discussion): We are all prone to criticize the treatment of such cases. I have seen specific conditions which necessitated such an amputation. Of course there would have been no excuse if the condition had been recognized sufficiently early, because then there would probably have been given antisppecific treatment. We have only the woman's word for the diagnosis, but she is probably right about it. Such being the case, there must have been a failure to recognize the character of the disease. Amputation was made within the last year, but she had had tissue excised sometime before that when the diagnosis of rodent ulcer was returned.

The treatment will be continued in both of these cases. Whether other doses of salvarsan will be given soon I am not positive, but in any case, whether they remain here or not, mercurial or iodid treatment will be given them and they will be requested to return for further observation. Possibly some other form of arsenic can be used to advantage. Very soon after Ehrlich brought forth "606" Murphy did some very satisfactory work with cacodylate of soda; he used from one-quarter grain in infants to five grains in adults, and in five to nine days reports as good results as the most optimistic in salvarsan are reporting now.

ORIGINAL ABSTRACTS.

MEDICINE.

ALBION WALTER HEWLETT, B. S., M. D.
PROFESSOR OF MEDICINE IN THE UNIVERSITY OF MICHIGAN.

DAVID MURRAY COWIE, M. D.
CLINICAL PROFESSOR OF PEDIATRICS IN THE UNIVERSITY OF MICHIGAN.

THE REACTION OF THE HEART TO DIGITALIS WHEN THE AURICLE IS FIBRILLATING.

LEWIS (*British Medical Journal*, November 26, 1910), who was one of the first to show that the auricles are fibrillating during the permanent type of irregularity, states that he has recently had the opportunity of examining the heart of a horse which showed this irregularity and that he found fibrillation of the auricles as he had expected. Clinically it is well known that digitalis frequently acts most beneficially on such hearts, slowing the ventricular rate and improving the general circulation. When the auricles are fibrillating in an animal experiment the rapidity of ventricular contraction can be lessened by a stimulation of the vagus nerve. This is due to the fact that stimulation lessens the conductivity of the His bundle so that fewer impulses reach the ventricles. Lewis assumes a similar action for digitalis in the case of the permanent irregularity of man. The hearts most easily affected by this drug are those in which the fibrillation is of rheumatic origin, especially when there is mitral valve disease. Slight lesions of the His bundle are common in such conditions and Lewis assumes that these, by reducing the conductivity, make the heart more susceptible to the action of digitalis. He does not, however, take into account that these patients are usually rather young and that in young individuals the cardiac fibres of the vagus are more sensitive than they are in older people.

A. W. H.

CONTINUOUS HIGH BLOOD PRESSURE.

PAL (*Medizinische Klinik*, 1909, Number XXXV, page 1312 and Number XXXVI, page 1356) states that continuous high blood pressure with accompanying hypertrophy of the heart constitutes a distinct clinical picture but its relation to the changes found postmortem has not been entirely settled. Most rises of blood pressure produced experimentally are of a transitory character. Such transitory attacks of high blood pressure are fairly common in man, and it is possible that after repeated attacks the general level of pressure becomes raised and continuous high blood pressure results. Even when the pressure is continuously elevated it is frequently subject to great variations. The increased pressure is almost certainly due to an increased resistance to the arterial flow through the small arteries, the hypertrophy of the heart being secondary.

The chief diseases with which continuous high blood pressure are associated are chronic nephritis and arteriosclerosis. In the former the anatomic changes present in the blood-vessels throughout the body are not always sufficient to explain the condition and for this reason many authors have assumed an increased tonus of the smaller arteries. The largest hearts are usually found in the true contracted kidney, in which cases arterial changes are usually present not only in the kidney but in all other organs. In chronic glomerular nephritis, with secondarily contracted kidney, the blood pressure is usually somewhat lower. Pal believes, however, that no distinct relation exists between the elevation of blood pressure on the one hand and the degree or character of nephritis on the other. He cites two illustrative cases. The first, a woman, forty-eight years old, had kidney trouble for four years, with normal blood pressure and large amounts of albumin. At autopsy she showed an extremely contracted kidney with diffuse sclerosis of the aorta. The second, a man, forty years old, had great hypertrophy of the heart, a blood pressure of 200, urine containing much albumin, specific gravity 1022, aphasia and repeated attacks of apoplexy. At autopsy he showed arteriosclerosis of the kidneys with glomerular atrophy. The changes in this case were not so severe as in the first and yet the blood pressure was higher.

In arteriosclerosis the relation between the rigid vessels and the high tension is not always clear. In some patients, the amount of arterial thickening seems entirely inadequate to explain the high pressure, while in others there is extreme thickening with no increase of pressure. The author reports the following case: In January, 1907, a woman, forty-two years old, had palpitation with a feeling of pressure in the cardiac region. The heart was moderately enlarged with systolic murmurs at the apex and the pulmonary area. The blood pressure was about 200. The urine showed a trace of albumin but no casts. Later, the patient had headaches, nosebleeds, and the heart became larger. There was some thickening of the peripheral arteries. At the autopsy the kidneys were normal except for congestion and there was found some sclerosis of the aorta and of the peripheral vessels. The autopsy failed to show any adequate cause for the high pressure. This case shows that a continuous high pressure may exist without marked changes in the kidneys or blood-vessels. Apparently, a functional condition of the peripheral vascular system may in some cases be a factor in producing high pressure. Continuous high pressure, therefore, is not of the same importance in all cases. In some it is secondary to contracted kidneys, in others it is a sign of arteriosclerosis, while in still others it is functional in nature. L. D.

TYPHOID IMMUNIZATION BY MEANS OF BACTERIAL VACCINES.

SPOONER (*Providence Medical Journal*, 1911, page 31) has applied the above principle to prevent the unavoidable incidence of direct infections in persons caring for the typhoid patients of the Massachusetts General Hospital. Previous to 1909 the incidence amounted to one and

six-tenths per cent of all persons exposed, in spite of the most scrupulous care, and the secondary cases were often of greater severity than the originals.

The routine consists of four vaccinations at five-days intervals in doses of fifty, one hundred, two hundred and three hundred millions respectively. It will be noted that the initial dose is only one-tenth that used in the United States army. By this means it is believed that the severe reactions are completely obviated and satisfactory immunity acquired in this same period of time. Since such vaccinations were instituted no typical cases of typhoid have been observed among the attendants. A mild acute infection lasting three days was observed in a nurse which may possibly have been typhoid.

The evidence on this point is very unconvincing since it consists mainly in the fact that the Widal was positive in slightly higher dilution after than before the illness. The same circumstance has been observed in two other nurses sick of some other infection, and raises the question whether infections other than typhoid may not enhance the immunity so established.

The author calls attention to another by-effect observed by him, namely, that vaccination may light up an old and latent infection. As an illustration he cites a case of urethritis and one of arthritis in which an acute exacerbation immediately followed vaccination. He cautioned against inoculating an individual with a higher mouth temperature than 99° Fahrenheit.

V. Z.

SURGERY.

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THE RELATION OF TRAUMA TO CANCER FORMATION.

"THE relation of traumatism to cancer has of late," says Phelps in *Annals of Surgery*, Volume VI, Number V, "been made a question of much medicolegal importance. It has been alleged, with special reference to the female breast, that cancer may result from an injury inflicted many years before. This assumption has been based upon the supposed opinions of various writers of more or less distinction; and in certain cases has been the essential ground upon which large sums of money have been awarded for personal injury."

The author has made an extended reference to the literature of this subject and remarks that no allusion was made to previous injury in connection with the history of cancer by any writer till near the close of the seventeenth century, and then only in a single instance, namely, Richard Wiseman, who wrote in 1676. The old humoral pathology prevailed during the eighteenth century, but inflammation, either idiopathic or resulting from some form of injury, was the cause assigned for cancer develop-

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operation. After opening the abdomen, large compresses are laid over the intestines and the abdominal walls are fastened over them in such a way that no intestines can protrude through a broad slit left in the wound. During the first two days after the operation as many as twenty litres of saline are introduced intravenously, in order to flush out the vascular system and give the heart something to pump on. Small amounts of the infusion do not accomplish this. Every case, no matter how desperate, is operated upon and out of fourteen cases seen during the past year, there was but one unexpected death, a patient succumbing on the twelfth day from embolism.

Four interesting questions are brought up for discussion and possible experimental research:

- (1) What part in collapse does the inflammatory congestion play, and is it to be combated or regarded favorably?
- (2) Does collapse during operation come from the rushing of blood into the abdominal vessels, due to removal of the pressure?
- (3) Does bacteriemia frequently accompany peritonitis?
- (4) Is bacteriemia favorably or unfavorably influenced by saline infusion?

B. R. S.

ON THE CURABILITY OF CANCER OF THE UTERUS UNDER PALLIATIVE TREATMENT.

AN interesting case of cancer of the uterus is reported by Bretschneider (*Archiv für Gynecologie*, XCII, Number 1). A woman, aged fifty-three, came to the clinic with what was apparently an inoperable carcinoma of the cervix. When first seen there was a suspicion of nephritis as well as a marked dilatation of the left ventricle of the heart, complications which strengthened the opinion that the carcinoma could not be successfully eradicated. Palliative treatment was decided upon and after curetting and applying zinc chlorid there was some collapse, requiring camphor and other heart stimulants. In two weeks the patient was dismissed from the hospital.

She returned after a lapse of seven months, her general condition being good and the cancer having materially subsided. The same technic was again applied. Four months later she again returned on account of hemorrhages and the cancer was then considered operable. A laparotomy was done and the peritoneum found to be studded with nodules. On account of this diffuse peritoneal carcinosis, nothing was done beyond again curetting and cauterizing the cervix.

One year later, or two years after the first curettage, the patient was again examined and found to be in perfect health. There had been no further hemorrhages and the cervix appeared fairly normal. The clinical cure seemed to be complete.

Bretschneider adds that there are no necropsy reports of the findings in such cases of unexpected clinical cures, but there is no theoretical objection to the assumption that carcinomatous foci may completely retrogress. There is a constant strife between the defensive cells and the cancer

and when a balance is maintained between the two forces, the cancer is kept in a latent stage but at any moment the defensive forces may become weakened and the malignant foci become rampant. Such is the explanation of late recurrences. By vigorous cauterization the defensive forces are vigorously seconded in their work. Perhaps there are unknown factors at work in these cases and something is liable to transpire which will unexpectedly diminish the proliferating capacity of the cancer cells and thus induce a turn for the better. This should always be borne in mind in the management of seemingly inoperable cases and care taken that the prognosis given is not so grave as to drive the patient into the hands of quacks.

B. R. S.

OBSTETRICS.

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CATALYTIC ACTION OF THE BLOOD IN TOXEMIAS OF PREGNANCY.

WINTERNITZ and Ainley (*American Journal of Obstetrics and Diseases of Women and Children*, Volume LXII, Number VI) report some interesting work on the catalytic action of the blood in the toxemias of pregnancy. Catalase is an enzyme, of universal occurrence in animal tissues, which is characterized by its power of decomposing hydrogen peroxid into water and oxygen. This power of decomposing hydrogen peroxid is diminished with renal insufficiency. In patients suffering with renal insufficiency due to nephritis and in animals in which renal insufficiency was produced artificially the diminution of the catalytic activity seemed in proportion to the renal involvement. Hence the test is of use in determining whether a given toxemia is due to renal or other organic disturbance.

Blood is obtained in a pipette graduated to contain twenty-five thousandths cubic centimeters. This amount is diluted with ten cubic centimeters of water, making a one to four hundred dilution. Five cubic centimeters of the diluted solution are used and mixed with five cubic centimeters of hydrogen peroxid. The gas that is liberated is measured in a graduated burette. In about eighty per cent of normal patients the amount of gas thus liberated measured between thirteen and seventeen cubic centimeters.

From their observation of patients suffering from various forms of nephritis, they deduce the following conclusions:

(1) Despite the presence of marked nephritis, provided there are no symptoms of renal insufficiency—that is, uremia—there is no marked change in the catalytic activity of the blood.

(2) When chronic nephritis is accompanied by indefinite symptoms of

renal insufficiency, the catalytic activity of the blood will be irregular from day to day, and will tend to assume a lower level than normal.

(3) In acute mercurial nephritis the catalytic activity of the blood is diminished.

(4) In uremic coma there is a marked fall in the catalytic activity of the blood, which continues if the condition ends fatally, but which rises should the coma disappear.

(5) Retention of urine, due to obstruction of the lower urinary tract, is associated with a marked decline in the catalytic activity. This may persist for some time but will rise again should the obstruction be removed.

A normal pregnancy, labor, or the puerperium does not produce any appreciable change in the catalytic activity of the blood. Ten cases of toxemia were studied, and in seven the catalytic power of the blood was unchanged, while in three it was diminished. Of the seven patients showing normal reaction, two died. Autopsy in these two cases showed the liver lesions of eclampsia with practically normal kidneys. The catalytic action of aqueous extracts of various organs in these cases agreed with the findings during life. The three patients whose blood showed diminished catalytic activity gave other evidences of renal insufficiency. The authors draw the following conclusions:

(1) The determination of the catalytic activity of the blood seems to offer a means of differentiating the toxemias of pregnancy into two groups.

(2) In certain instances the catalytic activity shows no departure from normal; these include cases of eclampsia and other toxemias without marked renal involvement.

(3) In certain other cases the catalytic activity of the blood is decreased; these include patients suffering from chronic nephritis in whom the increased work thrown upon the kidneys by the pregnancy brings about renal insufficiency, as well as cases of true eclampsia and other toxemias with marked renal involvement.

G. K.

MEDICAL NEWS.

IN MEMORIAM—DOCTOR JOHN KAPP.

REPORT OF NECROLOGIC COMMITTEE OF WASTENAW COUNTY
MEDICAL SOCIETY IN REGULAR SESSION
MARCH 22, 1911.

DOCTOR JOHN KAPP was born in the township of Northfield, Washtenaw county, Michigan, July 31, 1841. He was the son of Christian F. and Regina (Schlichter) Kapp, both of whom were born in Wurtemberg, Germany, and came to America in the years 1835-36. They met and were married in Philadelphia, Pennsylvania, and soon afterwards moved to Washtenaw county, Michigan, where Mr. Kapp became a successful farmer and stock raiser.

Doctor Kapp passed his boyhood days on his father's farm, attending the district school and later the union school in Ann Arbor. Afterwards

he taught school for some years. Having set his heart on a medical career, during his school teaching days, he began a course of study after which he entered the University of Michigan, graduating from the Department of Medicine and Surgery in 1868. In 1869 he graduated in Dental Surgery in Cincinnati, Ohio. He practiced medicine in Benton Harbor, Michigan, for a short time, then began practicing in Ann Arbor.

He was married July 3, 1869, to Anna, daughter of Mr. and Mrs. George Pitt, of Saint Louis, Michigan. Four children blessed this union, two of whom are living: Doctor Leander P. Kapp, of Los Angeles, California, and Ruth Adelaide Kapp. Rose and Georgiana both died in infancy.

Doctor Kapp held various civic offices and positions of trust. He was township clerk of Northfield while living at his father's home there. He was a member of the Board of Health in Ann Arbor for several years; was Mayor of the City of Ann Arbor in the years 1880, 1881, 1882 and 1885. He was a member of the United States Examining Board for Pensions from 1885 to 1897. He was a member of the American Medical Association, the State Medical Society, and the Washtenaw County Medical Society, and the Ann Arbor Medical Club. He was a member of the Golden Rule Lodge, Number 59, F. and A. M. He was also a member of the Washtenaw Chapter, Number 6, R. A. M., and of the Ann Arbor Commandery, Number 13, K. T.

He practiced medicine until 1907 when his health failed and he went to Los Angeles, California, where he was somewhat better. He came to visit Ann Arbor in 1909, and returned to Los Angeles, where he died January 17, 1911. Funeral services were held in Los Angeles, and at his old home on Main street in this city, under the care of his Masonic brethren, January 25.

Doctor Kapp kept up an active interest in medicine during his active life and had many friends in the profession. Personally he was of a jovial and generous disposition, and a staunch, unselfish friend who made sacrifices of time, comfort, and convenience to render service to his friends. He had a favorite answer that he usually gave to a request. If asked if he had time to see a patient or some like service, the answer, "I'll make time," was characteristic of his willingness to assist a brother practitioner. Many a time the writer has ridden with him on returning from a country trip in the night, when he would sleep by the mile and wake when his horses stopped or slowed from the rapid gait he drove. When in his prime he had a large and lucrative practice and gave himself in unstinted measure to the care of his patients, day or night, who, it is but scant truth to say, returned his service with deserving confidence.

Doctor Kapp began the practice of medicine in an age and generation fast passing away—when professional work was more laborious, before the days of telephones and automobiles, when the general practitioner was expected to do all the work now divided among half a dozen specialists. Beginning before Virchow's "cellular pathology" had been generally accepted, before the days of antitoxins, of serum therapy, his career covered a period of over forty years of the greatest activity and development in the history of medical science. The toxins of diphtheria, tuberculosis, typhoid, and rabies, and spirochæta pallida, have all been dis-

covered since and become amenable to preventive or curative measures. The span of life has been lengthened.

Those of us who have lived in the age of the great Civil War and the events following, used to think that we had lived in the greatest epoch of our country's history, but that struggle cost hundreds of thousands of lives. This age in medicine conserves life and adds hundreds of thousands to the race. "Peace hath her victories, not less renowned than war." And now as we look back over the years of association with our friend and professional brother, we think of him only with a feeling of kindly remembrance of the good qualities of mind and heart, and are reminded that the best time to express our kindly thoughts of our friends is while they live to enjoy them.

And the Society in adopting this memorial desires to record its tribute to Doctor Kapp's many estimable qualities as a man and physician.

RECENT PUBLICATIONS.

REVIEWS.

PRACTICE OF SURGERY.*

THIS volume is the first edition of an entirely new work. The numerous books that are published make it necessary for a new work to possess some distinguishing characteristics in order to obtain recognition. The present volume is a treatise on clinical surgery, and a consideration of the principles of surgery is omitted, except incidentally where it is demanded by the subject under discussion. It is intended to be an account of the practice of surgery as seen by the surgeon in practice.

The author follows the unique plan of presenting the subjects in the order of their importance. With this in view the first chapter considers appendicitis and the surgery of the appendix. A careful study of this chapter gives one a good idea of the character of the text. The important points concerning the anatomy are tersely expressed, and such points in the embryology as bear on the practical side are included. The pathology is short and to the point, and the discussion on the forms of the disease at once simplifies a usually complicated classification. Likewise no words are wasted in the discussion of the symptoms and diagnosis of the disease. Because of the relative frequency of appendicitis the author considers that it should always be thought of and ruled out first in every case of abdominal disease. The treatment suggested is to make early operation almost a matter of routine. Medicinal or expectant treatment is considered a dangerous waste of time. The operation is clearly described.

All through the book the same style is found. The pointedness of the discussions is always striking. The consideration of the diagnosis brings one directly to the desired end. In fact, one would almost infer that the diagnosis of surgical conditions is always very easy. The more com-

mon ailments are always mentioned first in any differential diagnosis, but the rare and unusual conditions which are often so confusing and difficult to remember are not considered to any extent. One realizes that these diagnoses are practical, and are such as are made before operation. The minute differential points of conditions which can usually be diagnosed only at the operation, are not considered practical in making diagnoses before operation, and receive very little attention.

The considerations on treatment and operation have the same characteristics. For any condition under discussion the author describes what in his experience has given the best results. As a rule some definite treatment or operation is recommended. Here again one would almost infer that any one kind of treatment would do for all kinds or variations of a disease, and hardly enough emphasis is placed on "surgical judgment." However, in this way the reader is not confused as he is when numerous operations are advised, and he remains uncertain as to which method to use. The particular operation recommended is always clearly described, the terseness of the description always making the technic appear very simple.

A book like this is not intended to and never will replace the more complete "systems" of surgery. The book is necessarily rather brief and in some respects incomplete. But it was not the author's intention to cover all of surgery in this volume. There is a distinct need for a practical volume like this and the author has well accomplished his purpose. To the busy practitioner of surgery the book will appeal strongly, and as the book represents a large surgical experience, it will be a safe guide to follow. As a guide to "clinical surgery" it can be heartily endorsed. The author and publishers have produced a volume different in scope from other volumes, and one which will be a help to the profession. One can heartily recommend the work.

*By James G. Mumford, M. D., Instructor in Surgery in the Harvard Medical School. Octavo of 1015 pages, with 682 illustrations. Philadelphia and London: W. B. Saunders Company, 1910. Cloth, \$7.00 net; half morocco, \$8.50 net.

DANIEL DRAKE AND HIS FOLLOWERS.*

THIS is the title of one of the most interesting books, that it has ever been our good fortune to read or to examine. The author has not been content to satisfy; he desired to excel, and consequently has endeavored to do his best—a laudable trait in any writer. He has not courted special favor nor dared the judgment of his readers, and, as it were, expecting no indulgence from others he has showed none to himself. He has been so painstaking, minute and careful, and retouched every line and sentence, as it were, with such indefatigable diligence, that he has left nothing to be corrected or forgiven. Integrity of understanding and nicety of discernment have been studiously and wisely employed throughout the entire work. The rectitude of the author's mind is beautifully shown by the dismissal of all professional prejudices, and the rejection of all unnatural thoughts and suggest numbers. The author has written more for the everlasting benefit of the profession at large than for himself, and doubtless

has given full credit, and more than due praise, to some who have never been especially friendly toward him. Throughout the entire work, there seems to be an undertone, or desire to instruct and please others, rather than the aggrandizement of self.

As to the literary merits of this work, too much praise cannot be accorded it and its author. While he does not make any boastful display of language—to paint the sunbeams—“to adorn the rose or paint the lily”—yet the whole work, from cover to cover fairly bristles with the richest thoughts; and is clothed with the choicest English our language affords. Not as Lowell says:

“Plastering our swallow-nests on the awful Past,
And twittering around the work of larger men
As we had builded, what we but deface.”

On the other hand, he would be simply a plain, humble, yet reverent guide for plain, humble and reverent strangers to the beauties of this matchless work, even as the sexton of a beautiful cathedral directs the steps of the respectful visitor, through the sounding archways of his loved minster. Should this work seem elementary to a certain class of readers, they should remember that it is so full of pure diction and artistic perfection as to be utterly beyond the reach of some people when they read it first, and of a great many, when they read it *last*. It is “a gem of purest ray serene.”

**Historical and Biographical Sketches.* With numerous illustrations, including a beautiful frontispiece of Daniel Drake. By Otto Juettner, A. M., M. D., Cincinnati, Ohio. Pages, 496. Price, \$5.00. Harvey Publishing Company, Cincinnati, Ohio.

GYNECOLOGICAL DIAGNOSIS.*

THE tendency of the age seems to be towards perfection in diagnosis, and it was with this aim in view that this volume was written. No attempt is made to present “treatment” in any form. The book is especially intended for practitioners and for those who have not the opportunity to study the subject in a hospital or clinic.

Numerous books have been published on this phase of the subject in recent years, and when a new volume appears one is particularly interested in seeing the new features that the work presents. In the present volume the author does not lay claim towards presenting new subjects or new ideas. The book shows in a very clear and simple way the means and methods used in modern gynecologic diagnosis, and this is its distinctive and valuable characteristic. This apparently was all the author hoped to do and from this viewpoint his text is very successful. The book is a good standard work on the subject, and can compare well with other books on the subject, although it does not seem to have any particular advantage over other texts.

G. K.

*By Walter L. Burrage, A. M., M. D., Fellow of the American Gynecological Society; Member of the Obstetrical Society of Boston; Consulting Gynecologist to Saint Elizabeth's and the Carney Hospitals; Electro-Therapeutic and Surgeon to Out-Patients, Free Hospital for Women; Clinical Instructor in Gynecology, Harvard University, and Instructor in Operative Gynecology in the Boston Polyclinic. With two hundred and seven text illustrations. New York and London: D. Appleton & Company, 1910.

HEART DISEASE, BLOOD PRESSURE, AND THE NAUHEIM-SCHOTT TREATMENT.*

THIS little book seems to the reviewer to be a very inadequate presentation of its subject. In addition a considerable portion of the book is given over to the author's personal opinions of the etiology and pathology of hypertension which are somewhat at variance with those commonly accepted. His instrument for estimating arterial blood pressure, which he calls a "sphymascope," seems to offer no advantages in accuracy or convenience over the numerous really excellent instruments already on the market.

V. Z.

*By Louis Tangeres Bishop, A. M., M. D., Clinical Professor of Heart and Circulatory Diseases in Fordham University School of Medicine, New York City. E. B. Treat & Company, New York.

HYDROTHERAPY.*

It can hardly be said that hydrotherapy has been placed on a thoroughly scientific basis. It is easily established that heat and cold procedures alter the body temperature to a marked degree but the secondary effects produced by cutaneous sensory stimuli, heat regulator stimuli, changes in metabolism and psychic effects are so inextricably mixed that no accurate analysis of the results is possible. It follows that the therapeutic application of heat and cold water must be largely empirical, and a slight deviation from the established procedure is apt to involve considerable difference in the character and degree of reaction to so powerful an agent.

The author has given a very good résumé of the large amount of research in this field but his conclusions are not always convincing. The chapters on the indications and applications are complete and explicit. The chapter on the Brandt bath in typhoid is particularly commendable.

V. Z.

*By Guy Hinsdale, A. M., M. D., Lecturer on Climatology in the Medico-Chirurgical College of Philadelphia. Octavo of 466 pages, illustrated. Cloth, \$3.50 net. Philadelphia and London: W. B. Saunders Company.

PRIMER OF SANITATION.*

THIS little book is interesting because it represents an attempt to introduce the subject of sanitation into the teaching of the primary schools. The author discusses such subjects as the struggle between the body and disease germs, and the common infectious diseases, their transmission and prevention. The text of the book is adapted to children, the illustrations are simple and good, and the large number of authorities who have read the book indicates the careful way in which it has been prepared.

A. W. H.

*Being a simple work on disease germs and how to fight them. By John W. Ritchie, Professor of Biology in the College of William and Mary, Virginia. Illustrated by Karl Hassmann. Yonkers-on-Hudson, New York: World Book Company, 1909.

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ORIGINAL ARTICLES.

MEMOIRS.

MEDICINE IN CHINA.*

CHARLES THOMPkins, M. D.

SUIFU, WEST CHINA.

[It gives the President great pleasure to introduce to the Clinical Society the following essayists who have kindly consented to give us a résumé of medicine in different countries, as seen by medical missionaries. Two of the speakers are University of Michigan graduates, and all have honored the school by choosing her for postgraduate study. From my previous conversations with these gentlemen, I know that they are too modest to tell the whole story of their self-sacrificing lives. But their deeds are known to us all and for these we pay them all honor.]

WITH all the culture and scholarship of a nation which has authentic history dating back five thousand years, where the scholar is honored above all other classes, it seems strange that China has so little scientific knowledge of medicine, and considers the practitioner in such an inferior position. In their code of social standing the scholar, farmer, artisan, and merchant rank higher in the order mentioned than the doctor. The people, therefore, do not call us "Doctor," but in terms of respect address us as "Teacher."

I have here our friend, Hsin Long, the god of medicine, who is worshiped in the home of every Chinese doctor, as the originator of Chinese medical knowledge. It is claimed that he was once a fairy, and moved to compassion by the ills, pains and disease of mortals, came to earth, provided with a transparent abdomen. He then went through China, partaking of all the thousands of herbs in the land, while his disciples noted down the action of these drugs as seen through this transparent abdomen. And these findings form the basis of Chinese medicine today. Yet Hsin Long lived about 2,500 before Christ.

*The above paper and the two following were read by invitation before the Clinical Society of the University of Michigan, March 8, 1911.

There are many ancient works on medicine in China, and one noble Prince compiled a book containing twenty-one thousand prescriptions. But there has been no advance in medical skill or knowledge, and you may readily conclude that it is most inefficient and crude. Confucius taught that there was so much more excellence in the achievements of the ancients than in the people of the day, that no attempt has been made to improve upon it; hence much of the failure to progress in China will be justly blamed upon the great sage.

A Chinese doctor reads a few books, tries a few prescriptions, and, if no one dies from the experiment, he starts out in the practice of medicine. There are no schools, no government regulations; the profession may be taken up at any time and place. Very often it is handed down from father to son. Aside from the worship of the god of medicine in the homes, the profession has its own temple or guild for worship.

The doctor depends almost entirely upon the feeling of the pulses in the two wrists—six places—for his diagnosis, although he will often look at the tongue. They believe the body to be divided into twelve compartments, and each pulse will indicate the conditions of certain compartments. For instance, the right radial indicates the condition of the liver and stomach. After completing the diagnosis the doctor writes out a prescription calling for fifteen to a score of herbs—for the most part inert—which are steeped in water, and the decoction is taken in one dose. If the patient is not improved in a few hours, another doctor is called in. In some instances eight or ten different practitioners are called in a day, each writing a different prescription.

One day I asked my teacher what the Chinese prescribed for lumbricoid—seventy-five per cent of the Chinese have this parasite—and he said they often used powdered maggots, which grow to large size in the cesspools, having previously washed and dried them. For tonics, horns of the deer or bones of the tiger are very popular, while the musk bladder of the musk deer is worth more than its weight in gold.

I must refer to the unhygienic conditions under which these people exist—and this appeals particularly to the medical missionary. They live in dark, damp houses, packed together on narrow, dirty streets, with no windows for sunshine. The sleeping rooms are usually in the darkest corners of the building, which cannot be used for anything else. The floors are usually pounded earth, with accompanying filth habits. One can but wonder how they exist at all. The women with their bound feet are not allowed to go out of the house except in closed chairs, and then only to some other house equally unsanitary. No wonder tuberculosis is so rampant among the Chinese, especially among the women.

The Chinese have but vague ideas concerning the position of the internal organs, having no anatomical dissections or autopsies in China, for the body is considered sacred. They are opposed to amputations, as a rule, for they believe the body in the next world retains the form at the death of the person, so if maimed it will always be maimed. That is why decapitation is considered the worst punishment possible, the spirit finding it so inconvenient not to have a head.

Infant mortality is very high, due largely to the unsanitary methods in caring for the infants. During the first day of its life a noxious dose is given it (one ingredient always being rhubarb), and sometimes the dust about the door-posts is used for dressing the cord. They also prick the gums of the little one with a needle—not sterilized, of course—to let in the “breath” with the idea of permitting the teeth to grow.

The crying need of the women in China at that time of their lives when they deserve the most kindness and sympathy, and are given none, appeals to me in a particular way. Only old midwives attend the labor cases. Let me refer to the first case to which I was called—that of retained placenta. The house was more like a barn or pigsty. The poor woman was seated in front of her bed—they always assume the sitting posture at such times—blood was standing in pools on the dirt floor. The little one was crying in a big washtub and had nothing over it to protect it from the cold, for the woman really preferred to let the babe die (it was only a girl) and then she could earn better wages as a wet nurse. We were able to help the poor woman and had the child cared for, but the picture will never be forgotten.

Not until China awakes from her long sleep, dethrones ignorance, and gives due recognition to woman, can we hope to see a healthy China. An unique opportunity presents itself to us at present, namely, creating a true medical profession in China. Medical colleges are being established, and educational propaganda for improved sanitation, hygiene, and preventive medicine are being conducted.

I have seen but two cases of appendicitis, and in our field in Western China we do not see cholera, bubonic plague, or yellow fever. Smallpox is rampant. There is no attempt at quarantining and often mothers inoculate their babes with smallpox. Vaccine is becoming better known and used. Tuberculosis, skin diseases, eye affections, and malaria are also very common.

There is a wide field for research in China, and the doctors there have done good work, especially along the line of study of intestinal parasites. Hookworm has been found in about three per cent of the cases that come to the hospitals, and then there are many forms of fever that need further study.

Chinese surgery is very crude and not very popular, as you might judge from examining this lance I hold in my hand, but the people soon learn to come to us for surgery.

* * *

MEDICINE IN INDIA.

LESTER N. BEALS, M. D.

WAI, INDIA.

THE native doctors of India practice the Arabian system of medicine, modified more or less at this time. Today native medicine is a mixture of quackery, superstition, and religion, and its basis runs away back to the Greeks. They do not dissect, and have practically no knowledge of physiology. Counterirritation is one of the most common forms of treat-

ment employed. They do not know anything about anatomy. They believe that the body has a number of gases in it, and the disease is diagnosed in relation to the particular gas with which it happens to come in contact.

Surgery, as practiced, is very limited, for the body is regarded as sacred. As in China, they are very loath to submit to surgical operations. In the treatment of fractures, bamboo is split into strips which are arranged parallel and tied with a rope. This is bound around the arm very tightly, without any appreciation of the results. Gangrene often follows as a result of this constriction. I have amputated arms at the elbow ten days after a fracture, absolutely dead, with no anesthetic.

In operations on cataract the native doctor places his fingers on the eye-ball and dislocates the lense. He does this fairly well and it is surprising how well and quickly he can do it with a little practice. Patients come in who have been treated that way and have occasionally gotten sight. Many suffer irreparable loss of sight, however, at the hands of the native lense conchers.

The native doctors have considerable knowledge of herbs and drugs. Mercury, senna, rhubarb, gums and resins are commonly used. The medical profession being hereditary, there has been handed down a large volume of experience. There are many shrewd men among them and it is surprising how well they can tell what is going to happen. The native practitioners are very shy of us. In obstetrics the work is hideous. The midwives are most filthy creatures, supposed to be better equipped for their work if they are blind. The patient is invariably in the darkest room of the house. They will not let a breath of air upon a woman in confinement. Naturally enough, fever is very common, and it is surprising that it is not more common than it really is. Superstition is closely mixed in with their ideas of disease and the treatment they apply. There is another school of practice there which treats those possessed of devils by incantations, but they are of a different school than the ordinary practitioners of medicine.

In India we meet the diseases that are common to the tropics. There are a few interesting diseases. For example, hydatid of the liver is met with in the form of smooth, hard, tumor, nonfluctuating, with no pain or distress. Mycetonia is very common. Madura foot is very frequently met with and runs on for eight or ten years; sometimes for this they will submit to amputation but usually not. Beriberi is very common in parts of the country, but not where I am now located. Kala-azar is common; leprosy is about us everywhere. In the early stages it is hard to make a diagnosis of leprosy.

The worst things we have to deal with are cholera and plague. The cholera stops at the beginning of the rainy season, the rain causing a washing down of water from the streams and cleaning things up. It sometimes lasts for five or six weeks.

With regard to plague, Osler says it is practically unknown in tropical countries like India. In 1896 plague was brought to Bombay from Hong-kong. In 1904 there were many deaths from it in India. The plague

lasts from five to six months and the conditions are much more fearful than in cholera. The death rate is from seventy to ninety per cent. In the last two or three years the Indian Plague Commission have settled the way in which the plague has been carried. Kitasato stood out against the theory that is now accepted as correct—that it is conveyed only by the flea, rat, and patient, but he now admits that it is probably a disease of rats, or at any rate of the lower animals. It is undoubtedly conveyed by the bite of the flea, and we protect ourselves by inoculation with the Haffkine serum, which protects us nine months of the year. We do not live in intimate relation with any animals like the squirrels, but it is impossible for us to get away from the rats.

The surgical part of our work is intensely interesting to me and telling in its results with the natives. It breaks down prejudice and bigotry and opens doors to the hearts of the people and to whole sections in a marvelous way.

* * *

MEDICINE IN ARABIA.

SHARON THOMS, M. D.
MUSCAT, ARABIA.

DOCTOR BEALS has well described the medical situation in India, which is very much like that in Arabia. The system of medicine practiced by the native doctors in Arabia is a translation from the old Greek, Hippocrates. The works were translated into Arabic and in that way preserved and passed down by the Mohammedans. Diseases are divided into hot, cold, dry, and wet. For example, indigestion is known as a hot disease, therefore watermelon or cucumber being the coldest things they can get, are used in its treatment.

The cautery is commonly employed. In the case of children, they burn great scars across the abdomen and then come to us to heal the burn. The use of charms is very common. The most common method is to write out portions of the Koran, put them into bags and fasten them around the arm. One man came to me with an ear trouble and I removed one of these pieces of paper from the auditory canal. I asked him how it came to be there and he said he had a bad toothache and the doctor put it in his ear to cure the pain. So we had to pull the tooth and treat the suppurating ear for weeks. These doctors are also dentists, and the only forceps they use are like a miniature blacksmith's tongs. They place the patient on his back, put a man on each arm and leg, and then the dentist proceeds to pull the tooth—or break it off. If the latter happens, as usually is the case, then they come to us to have the roots taken out. I have pulled as many as five hundred and seventy teeth in one year.

Once on calling to see a patient in a well educated family I found a child with his face covered with indigo, with weapons of warfare scattered about. I asked them what this was for and they said it was to scare away the bad spirits. Indigo was put on the face to make the spirits believe that the child was not beautiful enough to be coveted.

Medically, they have a few common remedies such as cathartics and

opium and one or two others. The most common cathartic is senna; they take a double handful of the leaves and boil down in a quart of water and the whole is taken at one draught. Perhaps this is why it requires such large doses to act upon them. Quite frequently we give six or seven grains of calomel with twenty or thirty grains of compound jalap powder, to be followed in the morning by an ounce of sulphate of magnesia.

Another very common custom is to write out words on a piece of paper in saffron ink, which is put into a glass of water and stirred. The ink and the sacred words are dissolved and they drink the water. In one case where I prescribed jalap there was no effect the morning following although the patient said he took it just as I told him to. When he opened up the paper in which I had given him the medicine, he said there was a little dirt in the paper and he did not like to take that so threw it away, consequently he stirred the paper in water and took that.

In obstetrics the conditions are like those in India. It is a wonder to me that any of the patients live. There is a large mortality among the women and the only cases where we are called upon to help are where the patients have been in labor for four or five days and the child has died and we are called to take it away. We have been called to a few instrument cases of the most difficult type.

The most prevalent diseases in Arabia are affections of the eyes and about one-half of these are trachoma. We also have cholera and plague and smallpox about us. I have passed through three epidemics of plague. We had a good example of the efficiency of Haffkine serum in the prevention of plague. We inoculated all the missionaries and the Christians and helpers. Among the natives not inoculated there was a mortality of about fifty per cent, and of those inoculated only one had a slight fever but without the loss of a day's work. This shows its efficiency.

Our most important work is the training of assistants. We must begin on very raw material, people knowing absolutely nothing about physiology or cleanliness and train them to be hospital assistants. We also have to teach them to compound prescriptions. The "British Pharmacopeia" is used and we first teach ourselves and then our assistants.

We now have three medical missions in Eastern Arabia at each of which from fifteen to twenty thousand patients are treated annually. I have treated as high as two hundred and twelve patients in one day. All of these patients are seen by the doctor, then passed on to the compounders or dressers, as the case requires, with written directions for treatment after a brief record of diagnosis and treatment is made in the record book. This dispensary work is done in the morning between eight and twelve. It is a custom all over the east to close all business from noon to about 3 P. M.; after this we do our operating and make regular calls. Urgent calls are made between 12 and 3 but it is so hot at this time of the day most of the year that all concerned like to remain indoors. This is especially true of our southern station of Muscat where I have recently been stationed, where it is always hot. Some one asked how our houses are heated? In the winter they are heated by hot air and in the summer by steam. We only have two seasons, a hot season and a hotter season.

The lantern pictures which follow will help to fix in mind pictures of the scenery, the people, and the work in our three principal stations. During the last year we have established three new stations to be manned or strengthened by those recently finishing their second year of language study on the field. The first two years are spent almost entirely in hard study of the difficult language of Arabic with its fifteen conjugations, complicated grammar constructions, rules and innumerable exceptions.

With the doctors that went out last year and the one sent out by the University this year to strengthen our force we hope very soon to have at least two doctors at each station so that one may take medical tours into the interior while the other stays by the work in the hospital, as it is desirable to always have a doctor at each station while others are on furloughs or vacations. In case of sickness of one physician more physicians will enable us to have assistants in large operations and in the overwhelming work to be done at each station. Last but not least increase in our force will enable us to go into puzzling cases with more detail of analytic and microscopic research which has been impossible in the past on account of stress of work. Then too there are many tropical diseases peculiar to our fields that should be investigated and worked out not only for better immediate results in our work locally but to the advantage of medical science in general, to which medical missionary work has already added no small part, which has often been unacknowledged by authorities. This has in some cases I think been due to a tendency to belittle this work by scientific writers but more especially due perhaps to the small amount of work reported in proportion to the amount done by such workers.

In the name of the five medical missionaries from the various corners of the earth that are with us tonight, I desire to say that we appreciate the cordial welcome this society has given us.

TRANSACTIONS.

CLINICAL SOCIETY OF THE UNIVERSITY OF MICHIGAN. STATED MEETING MARCH 8, 1911.

THE PRESIDENT, REUBEN PETERSON, M. D., IN THE CHAIR.
REPORTED BY JOHN WILLIAM KEATING, M. D., SECRETARY.

READING OF PAPERS.

MEDICINE IN CHINA.

DOCTOR CHARLES THOMPSON, of Suifu, West China, read a paper bearing this title. (See page 113.)

MEDICINE IN INDIA.

DOCTOR LESTER N. BEALS, of Wai, India, read a paper on this subject. (See page 115.)

MEDICINE IN ARABIA.

DOCTOR SHARON THOMAS, of Muscat, Arabia, read a paper which treated this question. (See page 117.)

REPORTS OF CASES.

*A CASE OF ABSCESS OF THE BRAIN IN A CHILD OF FOUR.
OPERATION. RECOVERY.*

R. BISHOP CANFIELD, M. D.

Department of Otolaryngology.

THIS patient was referred to this clinic from the Neural clinic with the following history: Child is four years old and well developed. Last March she fell on a toy boat, the mast of which was represented by a knitting needle. The needle entered the orbit just below the eye. A piece of the needle two inches long was removed immediately, and the wound healed. It did not affect the eye-ball or vision apparently. The wound healed within a few days. After that she complained of headache, vomiting, more or less constant sleeplessness and about four weeks after an incision was made at the inner side of the eye-ball from which pus escaped. Six weeks later Doctor Slack, of Saginaw, operated on the orbit and removed another piece of steel about two inches long, which showed blunt and broken ends. The parents believe that the needle was broken off before the accident happened and that this part is the end of the needle, but this is not absolutely certain. The child remained well after this part was removed until about seventeen days ago when she began to complain of headache, sharp and piercing in character, vomiting and sleeplessness, but no dizziness, nor staggering. When the trouble began seventeen days ago, she complained of pain only in the left frontal region, but now the pain is on both sides. She has not been vomiting as much now as at the beginning and has only a slight fever. The temperature has been moderate, from 99° to 101° or more in the evenings. She has not had any cross eyes in the last seventeen days. The parents say that there is no rigidity in the back of the neck. She is irritable to noises and light, but apparently not excessively so.

On December 10, 1910, the patient was transferred to this clinic for operation. Examination at this time was negative. Under this date the following operation was performed. The usual frontal sinus incision through the left eyebrow to median line, vertical incision upward two inches in median line, periosteum retracted, cortex negative. Frontal sinus opened and found negative. Entire antral wall removed. Area of dura uncovered one inch in diameter corresponding to upper half of the posterior wall of frontal sinus and extending upward. Dura bulged strongly forward, pulsation marked. U-shaped flap, base upwards one-half inch in diameter, followed promptly by small brain hernia. Brain incised in all directions, negative. Dural flap sutured with catgut, skin incision sutured for primary union.

The following day the patient was in good condition, temperature 100°, pulse slightly irregular, pain in the head slightly greater than before the operation. For the following week the temperature was normal, the patient had no pain, and there was marked improvement in the subjective condition. On December 23, and for two or three days previous, it was noticed that the patient was becoming somewhat more restless, took

less interest in surroundings and complained of headache. On the 22d her general condition seemed decidedly worse. On the 23d she relapsed into semiconsciousness from which she was aroused with difficulty. There was a slight swelling of both optic discs, the left being slightly more swollen than the right.

On December 23, the following operation was performed: Primary incision showed perfect union by first intention. Wound opened throughout initial incision, dura found strongly bulging, incised over area of bulging and large amount of creamy pus escaped. Following the escape of two or three drachms of pus, there was pulsating creamy fluid, probably cerebrospinal.

For the next sixteen days there was no cerebrospinal fluid and during that time patient's condition was normal with the exception of a slight evening rise of temperature (rectal) to 100° and very slight lateral nystagmus.

On January 16, the following operation was performed under chloroform: Wound edges freshened and sutured. During this operation it was noted that the dura bulged forward through the opening in the skull to the size of a small hazel-nut. It was very elastic and very thin and there seemed to be some fluid behind it. On account of the absence of symptoms and the fact that the brain had been carefully searched on several occasions since bulging took place, this was not opened.

For two days following the last operation the patient was in good condition, but on the next day she had a rise of temperature, became very irritable, with leukocytes 21,000. Her disposition seemed to change entirely. Instead of being an obedient child, she became irritable, with violent fits of temper and crying. She complained of severe headache in the left frontal region. The following operation was then performed: Incision opened, brain incised, brain searcher introduced through the incision in dura and second abscess discovered at a somewhat deeper level than the first one occupied. Immediately following this operation the patient's disposition changed entirely and she became happy and contented.

The patient made an uneventful recovery and was discharged on March 10.

This case strikes me as of considerable interest, first, because the abscess was a double one, as could be demonstrated by the encephaloscope; second, because it is a very rare thing to have a patient with deep brain abscess recover. It is also interesting to note the effect of the abscess on the child's disposition. When she came in for the second operation she was the picture of a very naughty child with a vile temper, she cried and struck at her nurse, but after the abscess was drained and immediately upon coming out of her anesthetic she showed a very sweet and lovable disposition. Since then she has been perfectly happy and contented, also obedient. At the present time she shows a slight divergent strabismus and has a slight irregularity in her gait.

I would like to remark that instead of treating these deep brain abscesses as something mysterious which might possibly be aspirated, we now look at them by means of reflected light and the brain speculum.

I would also like to show this patient with

FIBROMA OF THE NASOPHARYNX.

THIS patient with a fibroma of the nasopharynx is shown because the condition is not common and because it presents great surgical difficulties.

The patient, a boy of twelve years, was referred to this clinic because of a growth in the right cheek and difficult nasal respiration. The trouble was first noticed about the latter part of November, 1909, at which time he breathed with difficulty through his nose. He was taken to a physician who advised removal of a tumor from the nose. This was done without improvement. About ten days after the first operation, it was noticed that there was a mass in patient's right cheek. He was operated through the nose the second and third time and was then referred to this clinic February 16, 1910.

Examination revealed the right side of the nose filled with sloughing tissue, the deeper part filled with a tumor mass. The nasopharynx upon palpation showed a dense spherical tumor, apparently the size of an English walnut, its base attached to the roof of the nasopharynx on the right side. Behind this was a mass of adenoids. The right cheek showed a uniform, somewhat dense tumor growing around the lateral wall of the antrum, apparently taking its exit from the nasopharynx through the sphenomaxillary fossa.

The following operation was advised and performed February 23, 1910: Removal of the lateral portion of postnasal tumor. Incision through the mucous membrane of the lip over the presenting portion of the growth down to the capsule of the tumor. With the finger the tumor was then enucleated, with the surrounding tissues, as far as the base of the skull. This was accomplished with great difficulty, but without profuse hemorrhage. Many efforts were then made to surround this growth with a snare and remove it by traction. Removal by this method was found impossible. An attempt was then made to sever it with curved scissors, but the growth was found to be too tough. Finally the growth was encircled with a Mathieu tonsillotome and removed partly by traction and partly by cutting through its base. Moderate hemorrhage followed and the growth was found to be completely removed up to that point at which it joined the lobe in the nasopharynx. On account of the time consumed in the operation and shock usually attending such operations, removal of the lobe in the nasopharynx was postponed. On March 4, the patient was discharged from the hospital and advised to return later for a second operation.

On March 14, the patient reentered the hospital and the following operation was performed. The greater part of the tumor was removed through the right nostril by means of a snare and biting forceps. On account of profuse hemorrhage, the operation was stopped without removing the growth entirely, it being torn out with great difficulty. On March 22, the patient was discharged from the hospital to return later for another attempt to secure the growth.

The patient returned to the hospital May 9, 1910, and the following

operation was performed—attempted removal of the remainder of the tumor which originated on the posterior end of the middle right turbinate and neighboring tissues. Attempt at removal through the nose under ether was unsuccessful on account of hemorrhage and inability to secure firm hold of the growth.

On May 16, under cocain, attempted removal of the tumor through the nose but the attempt was unsuccessful.

On May 17 the patient was discharged from the hospital and advised to return later.

On July 28, 1910, the patient returned to the hospital in good physical condition. Examination showed nasopharynx free, deeper portion of the right nostril filled with an apparently soft growth. Under this date the interior turbinate was removed, also base of the tumor which sprung from the pterygoid fossa on the right side. On July 29 patient was again discharged from the hospital to return later if he had further trouble.

On January 16, the patient reentered the hospital. Examination showed the posterior half of the right nostril and nasopharynx filled with a recurrence of the growth.

On January 24, an incision two and a half inches was made through the mucous membrane of the alveolar process beginning one and one-half inches from the median line on the right side, and extending across the median line. The soft tissues were retracted, the nose slightly elevated, and an attempt made to reach the tumor through the right nostril. This was abandoned on account of the hemorrhage. A U-shaped incision was then made through the mucous membrane of the right half of the hard palate, and an unsuccessful attempt made to remove the tumor. The incision was then carried down so as to split the soft palate to the left of the median line. This allowed of a free approach to the tumor, which was torn out by a snare with the greatest difficulty, accompanied by a profuse hemorrhage. The tumor mass was situated in the posterior half of the right inferior turbinate, partly filling the nasopharynx. It hung downward to the level of the soft palate. An attempt was then made to remove the right inferior turbinate with Strychen forceps, but on account of the extreme rubbery character of the growth and profuse hemorrhage, this was abandoned. The palate was sutured.

On February 27, 1911, the following operation was performed: The edges of the small opening through the palate were freshened. A linear incision was made just to the right of the median line through the hard and soft palates. Examination of the site of the tumor showed that a large part of the mass supposed to have been tumor was blood clot. This was removed together with a small mass of the growth that remained. The wall was apparently free to digital examination. Small fragments of growth were adherent to the wall of the sphenomaxillary fossa.

For several days previous to the operation on February 27, the patient complained of pain in the left ear. The ear was irrigated. On March 13, the patient complained of pain in the ear and tenderness in the region of the mastoid. On the 14th paracentesis was performed and the dis-

charge from the ear increased. The patient was then prepared for a complete mastoid operation.

On March 15, a complete mastoid operation was performed. A perforation was found in the posterior portion of the body of the mastoid. The tip was carious. The mastoid was of the large-celled variety and was filled with a large quantity of pus and granulations. The tip was removed and a portion of the posterior wall of the sinus slightly exposed. The wound was packed with iodoform gauze and sutured. On March 27, patient complained of throbbing in the right ear. Paracentesis was performed the following day. On April 14, the patient was discharged to the care of his home physician.

* * *

Finally I would like to report the following case because of its unusual features:

FIBROMA OF THE NASOPHARYNX, WITH SPONTANEOUS RUPTURE OF THE RIGHT COMMON CAROTID: OPERATION; RECOVERY.

FRANK T., aged twenty, noticed a difficult nasal respiration about six months ago, since which time the patient has had several operations elsewhere without relief.

Examination showed the nasopharynx filled with a dense growth which projected forward into the right nostril. It was broadly attached to the posterior wall of the pharynx upward to the vault of the pharynx as well as to the floor of the right nostril and to the right side of the septum. Under ether anesthesia an attempt was made to remove the growth by avulsion, after splitting the hard palate. Partial separation of its posterior attachment showed that the bodies of the first two vertebræ were partially destroyed by pressure of the growth. Whether the tumor had reached the brain could not be determined. On account of profuse hemorrhage which could be controlled only by packing, the operation was terminated and the palate sutured.

Four weeks later, on account of profuse hemorrhage during the preceding operation, it was decided to ligate the right external carotid. This artery was found with considerable difficulty as the common carotid bifurcated very high up immediately beneath the parotid gland. At the bifurcation the internal carotid bent strongly backwards at right angles to the main trunk. In order to secure the external carotid, it seemed necessary to ligate the superior thyroid. Consequently, the external carotid, the ascending pharyngeal and the superior thyroid were ligated [Figure I]. On account of the rather unsatisfactory condition of the patient, removal of the tumor was postponed for a few days. Fifty-four hours later, I was summoned by the nurse who stated that the patient was having a profuse hemorrhage. In ten minutes I saw the patient who, in truth, had had a tremendous hemorrhage. His neck and shoulders were covered by a mass of blood. It seemed, however, as if the hemorrhage had ceased, temporarily at least. I feared that one of my ligatures had slipped or had cut through, and realizing that the bleeding had taken place from a large

arterial trunk, decided to secure it. The patient was carefully anesthetized without moving him from the position in which he was lying, and the wound opened and found to be dry. All clots were gently removed when suddenly a tremendous flow of arterial blood burst from the depths of the wound in the immediate neighborhood of the bifurcation of the carotid. It came so rapidly that its source could not be determined with accuracy, but half a dozen hemostats were hastily applied to the neighborhood from which the blood seemed to be coming. By this means the bleeding was controlled. Further examination revealed the fact that the source of the hemorrhage was a punched-out perforation in the external wall of the common carotid just below the bifurcation. On this account it became necessary to ligate the common carotid and internal carotid. Careful examination of the ligatures applied to the arteries previously

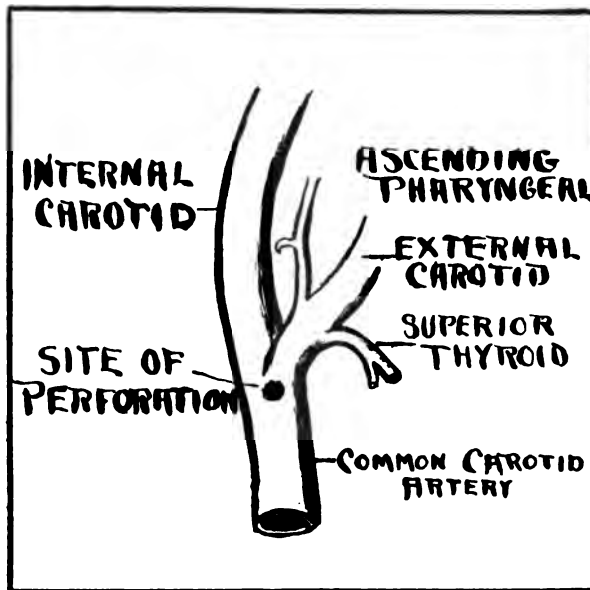


FIGURE I.—Diagram of Arteries Ligated.

ligated showed that they were intact. It seemed necessary then to consider two points:—

- (1) What caused the spontaneous rupture of the common carotid?
- (2) What stopped the hemorrhage?

(1) The first question is difficult to answer. It is reasonably certain that the wall of the vessel had not been injured at the time of the operation, as great care had been taken and as the hemorrhage did not take place for fifty hours after the operation. The very high and atypical bifurcation of the carotid had made it necessary to apply the ligatures to the external carotid, ascending pharyngeal and superior thyroid arteries very close to the bifurcation in order to avoid injuring the parotid gland. This formed something of a pocket in the great vessel into which the blood was forced, to find exit only through the internal carotid which extended

backward in a direction at right angles to the common. The support of the wall of the common carotid had been extensively removed by the separation of the artery from the soft parts surrounding it at the time of the ligation of the external carotid and the wall weakened by opening its sheath preliminary to applying the ligatures. It is possible that these two factors worked together to bring about the secondary hemorrhage.

(2) The second question is very interesting. How could spontaneous cessation of such a profuse hemorrhage and from such a large vessel occur? The important factor in stopping this bleeding was the posterior belly of the digastric muscle which crossed the common carotid immediately over the point of rupture. When the hemorrhage took place, several great pulsations of blood occurred, following which a negative pressure in the artery was established between pulsations. This negative pressure sucked into the vessel through the punched-out perforation a small bit of the tissue of the digastric muscle which served effectually to close the perforation. During the following pulsations this bit of muscle fibre became firmly tamponned into position in such a way as to control the bleeding until the muscle was drawn out of the perforation during the examination of the wound in the search for the source of hemorrhage. This patient made a slow but perfect recovery. Apparently no bad effect resulted from the ligation.

Six weeks later (March 19, 1911) the tumor was operated upon. Vigorous attempt was made to separate the tumor from the posterior pharyngeal wall with the finger and a special separator was made for the purpose but was slightly serviceable. The palate was then incised in the median line along the old incision from a point about one inch behind the incisor teeth to a point one-half inch anterior to the free margin of the soft palate. The right half of the bone of the hard palate was then completely removed and an attempt made to remove the tumor by traction. This was unsuccessful as the tumor was so dense and its attachment so broad. The Killian incision for the radical operation upon the ethmoid was then made, the right ethmoid removed, and the upper aspect of the tumor revealed. It was then discovered to be attached all along the cribriform plate. From this attachment it was gently separated and pushed downward into the nasopharynx. A heavy wire snare was then passed through the incision in the palate and made to encircle the tumor near its base. With this instrument the tumor was then torn loose and removed. Resulting hemorrhage was profuse but controlled by packing. The Killian incision and the palate incision were then sutured. Perfect recovery resulted without interference with the function of the palate.

*CARCINOMA OF THE UMBILICUS, SECONDARY TO UTERINE
CARCINOMA.*

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MRS. M. C., Gynecologic clinic number 3895, was admitted to the University Hospital on March 6, 1911. The patient is a married woman, aged forty-nine, an American and a housewife. She became an adopted

child in infancy and knows nothing concerning her parents. She has no brothers or sisters. She was never healthy as a girl but was always weak and puny. Had measles, whooping-cough, and scarlet fever with good recovery from each. At the age of thirty-three, she had diphtheria of a very moderate severity. History of specific disease is entirely negative.

Patient's menstrual life began at fourteen and became well established at the end of one year. Her periods were never regular and came every four to seven weeks. She flowed during three days and stained about one napkin per day. The color of the blood was natural; at times it had some disagreeable odor and occasionally contained small clots. She suffered from headaches during the week preceding, although the periods were not painful. The last period was during the last week in February.

Patient was married at the age of eighteen, her husband dying five years ago at the age of fifty-one of paralysis. Throughout her married life, there was at times a slight whitish leucorrheal discharge. She has been pregnant eight times and has had three living born children, three still born children at term and two miscarriages. One child is living at the age of thirty and is in good health. Two children died seventeen years ago of diphtheria at the ages of eleven and nine. Her labors and post-partum recoveries were entirely uneventful. The two miscarriages, each at about three months, were seventeen and fourteen years ago. The cause of these is unknown and her recoveries were without event. She has not been pregnant during the last fourteen years.

The patient comes to the hospital because of pain in the lower abdomen. She dates the beginning of her trouble from the early part of the summer of 1910. The pain is of a dull, heavy, dragging, bearing-down character, present in both lower abdominal quadrants but especially marked on the right side. It radiates down the anterior part of both thighs to the knees. The pain is practically continuous, is severe enough to keep her awake at night and has gradually become worse. Any exertion aggravates the pain, while rest relieves it. Occasionally she has sacral backaches. There have been no headaches.

Within a few weeks of the onset of the pain the patient noticed a small "bunch" about the size of a hen's egg slightly to the left of the median line and low down. This, she says, is no larger now than when she first noticed it. During the last two years, her periods have come more often, every two to three weeks, and she flows five days instead of three, although only one napkin a day is stained. There has been no flowing between periods but the doctor's examinations while in this hospital, gave rise to bleeding.

Accompanying her trouble, there has been a profuse, watery leucorrheal discharge of a very foul odor. Small bits of flesh were noticed in it, although it has never been blood streaked. During the last eight weeks, she has had considerable bladder trouble, consisting of a constant desire to urinate and frequent painful passages of small amounts of urine. There has been no fever, chills, or gastric symptoms. She does not think she has lost in weight. Her bowels are naturally costive.

Three months ago the patient's attention was drawn to her navel

because her underclothing became adherent to it. She then noticed that the navel was slightly swollen and red and from it there came a small amount of whitish discharge. It has gradually grown larger to its present size. There is slight itching and an occasional stinging pain. The tumor has continued to discharge a yellowish matter and twice this was blood streaked.

Physical examination, March 7, 1911, showed the temperature 99.6°, pulse 92, expiration 22, weight 100 pounds, height five feet one and one-half inches. She is of slender build, emaciated, has atrophic musculature, and a moderate amount of flabby panniculus. The skin is sallow, dry and inelastic. The conjunctivæ and oral mucous membranes are pale. Examination of the lungs and heart is negative.

The abdomen is about on the rib level with slight bulging in the hypogastrium. The umbilicus is the seat of a red, elevated, circular excrescence, about the size of a quarter of a dollar and about five millimeters in thickness. Its surface is somewhat ulcerated and from it there exudes a serous fluid. The tumor is indurated and infiltrating and is not tender to touch. The mass in the pelvis extends half way to the umbilicus, filling especially the left side. It is hard, nodular, tender and practically immovable.

Vaginal examination: The clitoris is free, external and internal perineum intact and rigid. The cervix is almost at the introitus and is the seat of a hard, granular, excavated mass, filling the entire vagina. It is friable and infiltrating and into its center the finger can be passed up an inch and a half. The discharge is foul, bloody and contains necrotic bits of tissue. Axillary and inguinal lymph nodes not palpable.

Blood examination shows red blood cells 4,200,000, white blood cells 7,300, hemoglobin 74 per cent—Miescher. Blood pressure 120, left arm, lying down—Faught.

Examination of a catheterized sample of morning urine shows a marked turbidity, acid reaction, specific gravity 1012, one-tenth volume albumin with heat and nitric acid, glucose negative. The sediment shows five millimeters of pus in the ordinary centrifugalizing tube, few epithelial cells but no casts.

The diagnosis in this case is advanced carcinoma of the cervix, involving the adnexa with secondary involvement of the umbilicus.

This case is very interesting because of its rarity. A popular classification of malignant disease of the umbilicus divides it into, primary squamous carcinoma, primary adenocarcinoma, sarcoma, and secondary carcinoma.

Primary squamous carcinoma is so exceedingly rare that much doubt exists as to its occurrence, although there are some cases on record where necropsy failed to reveal a primary growth.

Primary adenocarcinoma is also doubted but several cases are on record with its probable origin in the remains of the omphalomesenteric duct. Sarcoma is the most frequent of the connective tissue tumors.

Secondary carcinoma is by far the most common and interesting and

usually is secondary to gastric, intestinal, biliary, or pelvic carcinoma. About two-thirds of all secondaries are due to the alimentary tract and liver and one-third to the female genital tract. The primary disease extends by continuity in a large majority of cases. In twenty-nine cases reported, only five cases were metastatic.

A CASE OF ACTINOMYCOSIS.

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Department of Surgery.

THE patient was a farmer boy of Canadian birth, single, aged nineteen. He entered the hospital June 18, 1910, as an emergency case. His family history, as well as his personal history up to the time of his present troubles, is practically negative.

His present trouble began on March 9, 1910. At this time he was taken with severe pain in the abdomen, accompanied by fever and occasional vomiting. His condition improved somewhat after a few days but for six weeks he continued to have considerable pain and was unable to do any work. May 1, he felt somewhat improved and attempted to resume his work but the pain immediately returned. He continued quite ill from this time until his entrance to the hospital.

On entrance, the patient's temperature was 101°, pulse 110. The patient complained of considerable pain in the abdomen which was much distended and very tender, especially over the right lower quadrant. A rather indefinite mass could be made out extending from the umbilicus to an inch above Poupart's ligament and from the median line to slightly beyond the outer border of the right rectus. A diagnosis of appendicitis with abscess was made and the patient prepared for operation.

The abdomen was opened by the gridiron incision. It was noted that the muscles split with great difficulty and gave the appearance of having undergone some chronic inflammatory process. On account of the numerous adhesions it was necessary to considerably enlarge the wound before the caput could be delivered. In attempting to bring up the appendix it was torn away and a small abscess broken into. Drainage was provided for this abscess cavity and no further attempt made to reach the stump of the appendix. The mass that had been felt from the external surface of the abdomen could now be easily seen and palpated. It appeared to be beneath the rectus muscle and between it and the peritoneum. In order to get at this more directly the first incision was closed and a second one made over the mass and through the rectus muscle. On opening into the mass it was found to consist of partially necrotic tissue and suppurating foci. This necrotic tissue was curetted away, and the wound packed with iodoform gauze. At the time of opening this mass the diagnosis of actinomycosis was made and this diagnosis was confirmed later by the pathologic report.

Following the operation both wounds discharged a clear pus and the wound over the appendix failed to heal, gaping widely after the removal of the sutures. On the fourth day potassium iodid in fifteen grain doses, three times a day was prescribed for the patient with directions to increase

the dose a grain each day. Three days later the patient developed rather severe symptoms of iodine poisoning. The dose was therefore decreased to ten grains three times a day. Following this reduction the symptoms became less marked but there still remained considerable gastric irritation making it necessary to discontinue the drug on the fifteenth day. Up to this time the patient had taken liquid and very soft diet. On the fifteenth day the patient vomited a great deal, the vomitus having a fecal odor, the abdomen becoming distended and the pulse rapid and weak. The stomach was washed frequently and feeding by mouth discontinued and rectal feeding begun. The following day the potassium iodid was started by rectum, twenty grains three times a day, increasing the dose each day. Rectal feeding was continued until the twentieth day when feeding by mouth was resumed, although the potassium iodid was continued by rectum until the thirty-fifth day when the dose had reached one hundred and ten grains three times a day. The drug was now given by mouth beginning with twenty-five grains with instructions to increase the dose each day. After the symptoms of the initial poisoning subsided there were no more toxic symptoms although the patient was taking at the time of his discharge on the forty-seventh day thirty-seven grains three times a day. The patient improved very rapidly during the time he was able to take large doses of potassium iodid and at the time of his discharge he was in very good condition and the wounds were practically healed. The patient was given a prescription of potassium iodid and was told to take it in increasing doses under the direction of his home physician.

On August 15, ten days after his discharge, the patient was again admitted to the hospital. He came this time because of a small mass the size of a hickory-nut situated a little to the right of the umbilicus. The patient was at once prepared for operation and the mass opened and its contents curetted away and the wound packed with iodoform gauze. At this time a considerable amount of necrotic tissue also was curetted from the wound over the appendix. Following this the patient was given potassium iodid in increasing doses beginning with thirty-five grains three times a day. The wounds were irrigated daily with weak lugol solution and packed with iodoform gauze. The potassium iodid was continued until September 15, when it had to be discontinued on account of gastric irritation and marked loss of appetite. Up to this time the patient seemed to gain steadily and the wound healed in a very satisfactory manner. Early in October, however, several other indurated areas began to appear in the abdominal wall, and on October 19 these, as well as the one previously described, were opened and curetted. These indurated masses had a very characteristic appearance and feel. In the early stage of the process the skin over the indurated area became slightly reddened, but a little later became a peculiar, reddish blue. The skin over the area became somewhat edematous but the tumor itself did not project to any great extent above the level of the surrounding surface. To the touch, these masses were brawny, not sharply defined, and seemed to include all the layers of the abdomen. When opened they were found to contain necrotic tissue and foci of pus. This necrosis did not seem to involve the

skin or muscles very extensively but was rather confined to the fascia and subcutaneous tissue. Its extension in every case was along the fascia, and there was no tendency for the process to extend through the muscle into the peritoneum. These areas were not painful but were exceedingly tender to the touch.

From November 5 to December 5 the patient again received potassium iodid per rectum in sixty grain doses three times a day. Its administration during this time was far from satisfactory, as the patient complained of considerable tenesmus, diarrhea, and gastric irritability, and on account of these the drug had to be discontinued. From this time on the history of the case is that of a gradual but progressive advance of the disease and a slow but certain yielding of the patient to the infection. From time to time potassium iodid was given by rectum or by mouth. When given by mouth patient lost his appetite and could not eat. When given by rectum the latter became so irritable that nothing could be retained.

On December 1, 1910, the patient was again operated upon and numerous new areas and several unhealed old ones were curetted and swabbed with iodine.

Early in January, 1911, the patient developed an aphasia, which was thought at the time to indicate cerebral involvement, but the condition proved to be only temporary, for on the following morning a neurologic examination showed his mental condition normal.

On January 24, a fluctuating mass was discovered in the left lumbar region posteriorly near the spine. By pressure on this mass large quantities of a rather thin grayish pus could be forced out of a previous incision which had been made over one of the indurated areas in the lower left inguinal region, just above Poupart's ligament. On January 26, an incision was made over this mass and a large amount of pus and necrotic tissue removed.

On February 4, the patient developed marked edema of the right foot and leg, but no local condition could be found to account for it. From this time on the patient failed very rapidly and died on the evening of February 7. No postmortem was allowed.

ORIGINAL ABSTRACTS.

MEDICINE.

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CONTROL OF TYPHOID IN THE ARMY BY VACCINATION.

In the Wesley M. Carpenter Lecture of the New York Academy of Medicine Major F. F. Russell, M. D., of the United States Army, gives (*New York State Journal of Medicine*, December, 1910, page 535) a very comprehensive review of the whole subject of typhoid vaccination

and reports the statistics of the United States Army for the years of 1909 and 1910.

The disappointment following the results of the British experiments during the Boer war, have been found to be due to a great extent to imperfections in the preparation and dosage of the vaccine. As a result of the work of Sir W. B. Leishman the procedure was reintroduced in the British army in 1904 on an extensive scale, and into the United States army in 1909.

The vaccine employed in the United States army has been prepared at Washington from a single strain of bacillus which has a relatively low virulence since it has been under cultivation for a number of years. Apparently the virulence of the strain has little to do with the immunity developed, although the reaction to the vaccination varies directly with the virulence. The bacilli are grown for eighteen hours on agar, collected in large flasks and sterilized for one hour at 55° centigrade in the water bath. Temperatures exceeding 55° centigrade lead to deterioration in the emulsion and are needless. The emulsion is now tested for living germs by culture and animal experiment, the number per cubic centimeter is estimated by direct counts and sterile normal salt solution added until a given volume contains the standard number of bacilli and one-fourth per cent of tricesol. The vaccine is then put in ampoules and aged for three weeks, as it is found to give rise to less reaction after such ageing.

The injection of one-half cubic centimeter (five hundred million bacilli) is given near the insertion of the left deltoid at about 4 P. M. After ten days twice this dose is again injected and this dose (one billion) is repeated after another interval of ten days.

The reaction follows in a few hours and is "local" and "general." This local reaction is usually rather trivial and causes little inconvenience. The general reaction is marked by some rise in temperature, headache, nausea, and malaise, and varies widely with the individual. Very severe reactions with temperatures of 103° Fahrenheit or over may occur. Indeed such temperatures were recorded in nine-tenths per cent of the injections of the first dose given during 1909, but by a readjustment of the dose in 1910 the percentage fell to seven-tenths per cent. On the other hand, about sixty per cent of the first injections were followed by no elevation of temperature or headache.

The degree of immunity attained was controlled by estimating agglutination and opsonins. The two methods give directly comparable results. High degrees of agglutination were attained. Only rarely did agglutination fail with a dilution of one in five hundred and in one case a typical reaction was obtained in the dilution of one in twenty thousand.

In the fifteen thousand eight hundred and sixty-three injections there have been no complications at the site of injection. In one instance a remarkably prompt and severe reaction set in marked by chill, diarrhea, extensive herpes, and the loss of seven pounds in eighteen hours. It is assumed that a portion of the vaccine was accidentally introduced into one of the venous radicles.

Statistics covering only two years of peace with the army in barracks give no convincing evidence of the value of vaccination. However, the incidence among the vaccinated troops was about one-tenth that of the remaining unvaccinated. Several significant incidents have also been observed. The following quotation will illustrate:

On June 14, 1910, ninety-two men of Company A, First Battalion of Engineers were vaccinated. On June 24 the company left Washington, District of Columbia, en route to Gettysburg, Pennsylvania. The total strength of the company was one hundred and eighteen men. Ninety-two of these had received at least one inoculation, two others gave a history of having had typhoid and may be considered immune, thus leaving twenty-four men unprotected by either a previous attack of the disease or by vaccination. On August 11, five days after returning from maneuvers, two cases of typhoid fever occurred among the unvaccinated and four secondary cases occurred between the 20th and 23d, also among the unvaccinated. No cases occurred among the vaccinated, while twenty-five per cent of the nonimmune living under exactly the same conditions succumbed to infection. As great a difference as this is certainly significant and justifies us in believing that we have at last a measure which will save untold lives in time of war.

V. Z.

GYNECOLOGY.

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THE TREATMENT OF ACUTE GENERAL PERITONITIS.

BEVAN (*The Journal of the American Medical Association*, Volume LVI, page 1184) briefly considers the development of the modern treatment of acute general peritonitis, contrasting the thirty-five cases from 1885 to 1893 collected by Mikulicz and showing a mortality of ninety-seven per cent with recent work like that of Murphy, who treated twenty-nine cases with but one death.

At present the different methods advocated for the treatment of acute peritonitis may be summarized as follows:

- (1) The saline cathartic treatment as recommended by Tait.
- (2) The rest in bed and starvation treatment proposed by Ochsner.
- (3) Blake's plan of radical operation including irrigation of the peritoneal cavity.
- (4) Murphy's treatment by operation with rapid removal of cause and drainage without irrigation and with continuous slow rectal saline and extreme Fowler position after operation.

Detailed consideration is given to each of these methods and it is shown that all of them are valuable to a certain extent. Thus, the course of saline cathartics is most useful in combating paralytic ileus, which is one of the common results of peritonitis, but no one would

think of employing this treatment before operation in perforative peritonitis, when Ochsner's treatment is urgently indicated. The other methods are also specially suited to certain conditions in which treatment by either of the first two plans is not to be thought of. Partisan advocates have exaggerated the merits of one method and belittled the obvious advantages of the others, but the greatest success will be obtained by the exercise of careful surgical judgment in combining these different procedures to fit the case in hand.

The first requisite is an early diagnosis before the great distention, pinched face, cold extremities, and absent radial pulse only too certainly foretell the fatal issue. These neglected patients should be given every possible chance but should not be operated upon when they are evidently in extremis.

At operation, alimentary canal perforations must be treated in such fashion as to prevent absolutely any further leakage. It is only in the very rarest instance that drainage without closure of the leaking perforation is to be considered. When the peritonitis originates elsewhere than in a perforation of some portion of the alimentary canal remove the original focus of suppuration if possible.

Always test the dependent portions of the peritoneal cavity for free pus and other noxious and necrotic material which may have been widely disseminated. Should such free exudate be found, thoroughly flush out the peritoneal cavity with normal salt solution at 112° Fahrenheit while the abdominal wound is being closed.

Unprotected rubber drainage tubes are avoided. Instead, small dressed tubes are used. The moist dressings over the wounds are frequently changed and the moderate Fowler position is employed. Intermittent rectal salines of six to sixteen ounces of salt solution are preferred to the continuous slow salines. The stomach tube is withheld unless there is distention and vomiting. Morphin is given only when necessary to secure a little needed rest for a patient that is nearly exhausted. Paralytic ileus is treated by glycerine and salts enemata, and small repeated doses of castor oil with moderate doses of strychnine. N. N. W.

LEGAL ASPECTS OF POSTMORTEM CESAREAN SECTION.

BACON ("Transactions of Chicago Gynecological Society," December 16, 1910, as reported in *Surgery, Gynecology and Obstetrics*, Volume XII, Number II) reports the following case as a basis for the discussion of this subject. The patient, aged twenty-four, multipara, entered the hospital a very short time before her death. Doctor Bacon had instructed his interne to perform an immediate postmortem Cesarean section in case her death occurred before his arrival. On reaching the hospital he found his instructions had not been carried out by the interne because the patient's husband had forbidden the operation. The patient had been dead for about twenty-five minutes when Doctor Bacon arrived, but the fetal heart was still audible. He at once opened the abdomen and extracted a living child, which, however, did not survive. He thinks the

child could have been saved if it had been extracted immediately after the mother's death, and if he had been present he would have ignored the husband's veto and would have rescued the child in spite of it. The autopsy and examination showed that death had been due to uremia.

The author reviews briefly the changes in sentiment on this subject and mentions the indications for the operation as they have been accepted by the most experienced teachers.

The "lex regia" of Numa Pompilius provided that no pregnant woman who died should be buried until her child was removed. This law was spread by the Roman conquest and was endorsed by the Catholic church which directed the baptism of all children thus born. In some countries this law is still the rule, while in others Cesarean section is employed only after the child is viable. In America there are no statutes or decisions on the subject. The author thinks that in the absence of such decisions the old Roman law would have considerable weight in deciding the justification of the operation.

Of most importance is the question as to whether the death of the mother can be determined quickly and certainly. From a legal standpoint there is a distinct difference between postmortem Cesarean section and Cesarean section performed on the dying. As long as the patient is alive the consent of the husband is absolutely necessary before operation. If one waits long after apparent death, precious time is lost and the chances of the child are much diminished. Hence the decision involves a great responsibility.

Another important question is the condition of the fetus. Physical conditions and surroundings may make careful auscultation of the fetal heart impossible. Fetal auscultation can be omitted if the fetus was known to be alive a very short time previous to the maternal death. Even without positive evidence of fetal life, the author considers that the operation is justified by the hope that life may still be present. The limit of fetal life after maternal death is probably about twenty-five minutes, and the author considers a section justifiable if that time has not elapsed. The chances should be taken in favor of life and not against it.

The two questions just considered, namely,—establishing the diagnosis of maternal death and the diagnosis of viability of the fetus, are in Doctor Bacon's opinion the only questions that need be considered in establishing a rule of practice. He does not think that objections of the husband and relatives should be considered. However, he thinks it best in some cases to prepare the relatives for the operation beforehand and interest them in the hope of saving the child.

The author considers that, although the husband is privileged to determine whether any operation shall be performed on his wife while living, yet his power of consent or refusal terminates with her death. Furthermore, the fact that the husband has the right to prevent any autopsy that is not demanded by the state, does not give him the right of refusal for this operation, as the operation is not performed for the purpose of examination, but to save life. The obligation to save the human fetal life

when it can be done without destroying or seriously jeopardizing another life is absolute. Reason and humane sentiment would support this proposition.

The legal status of the fetus is rather ill-defined, and various legal opinions seem contradictory. However, its rights are gradually being extended and better recognized.

In the discussion of the subject by Reichmann of the Chicago bar, it was pointed out that in earliest English times a dead body was not considered as property, and no liability could arise from the taking or mistreatment of a body. However, in the evolution of common law it was soon considered a crime to disturb for wanton or mercenary purposes any buried body, and at present the nearest kin is by common law considered the custodian of the dead, and it is equally well settled "that the custodian of it (the dead) has a legal right to its possession, for the purposes of preservation and burial, and that any interference with that right, by mutilating or otherwise disturbing the body, is an actionable wrong," for which suit may be brought and damages recovered.

While the law now recognizes a legal right to the possession of a dead body, yet the legal right is by no means an absolute one. Thus in the interests of public health, states have the right to disinter human bodies and reinter them in other places without the consent or even against the protest of those in whom the primary legal right is vested. Also in the interests of public justice the court has the power to order an autopsy, regardless of what sentiment may be expressed by the relatives. "It is evident from the authorities that neither the right of the sepulcher, nor the right to have the body remain untouched and unmolested is an absolute and fixed right, *but these rights must and should yield when they conflict with the public good, or where the demands of justice require such subordination.*"

The law looks with favor and in some instances encourages the marital relation and the creation of human life. It is unlikely that the law will frown upon any effort to promote its policy, or lend sanction to an unreasonable and sentimental obstruction. The preservation of human life is of the greatest concern and solicitude to the law, and all other things and considerations are subordinated to this. The attorney considers any interference with the rescue of the child as nothing but murder. No husband has a moral or legal right to refuse consent. Furthermore, the attorney concludes "that given a case in which, in the light of existing scientific knowledge, the belief is reasonably justifiable that the infant may be rescued and its life saved, a Cesarean operation will be justified by the law on public policy, and the person performing the same will be fully protected, both civilly and criminally, though performed without the consent, or even against the protest of those in whom the law has recognized a legal right to the possession of the body of the deceased, provided, of course, the operation be performed in good faith and with due skill, and without unnecessary injury or mutilation."

G. K.

VAGINAL CESAREAN SECTION IN ECLAMPSIA.

PETERSON (*The Journal of the American Medical Association*, Volume LVI, Number I) discusses the indications for, and describes the technic of vaginal Cesarean section. This operation is indicated in eclampsia when, in the presence of a rigid cervix, the uterus must be emptied rapidly. The author is of the opinion that under certain conditions the operation should be performed by the general practitioner, and that in unskilled hands this operation is not as productive of as much harm as instrumental or manual dilatation of the cervix.

The technic is well illustrated by drawings. The vagina is first dilated with the hand held in the shape of a cone. The cervix is pulled down with a vulsellum forceps, and a transverse incision made in the cervical mucous membrane just below the cervicovaginal junction. With a gauze sponge the bladder is easily separated from the cervix and pushed up behind the pubes where it is held by a sponge or a retractor. The anterior cervical lip and anterior lower uterine segment are then cut, care being taken to incise in the median line. If more room is required the posterior cervical wall is incised, in the same way, after the rectum has been well pushed out of the way. After making these incisions the child is delivered by version or by forceps. The incisions in the uterus and vagina are sutured with catgut.

The after treatment differs in no respect from an ordinary obstetric operative case. The cicatrices are strong enough to stand subsequent labor without rupture.

G. K.

OBSTETRICS.

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**THE TREATMENT OF ECLAMPSIA, WITH ESPECIAL
REFERENCE TO CHOICE OF ANESTHETIC.**

CRAGIN and HULL (*The Journal of the American Medical Association*, Volume LVI, Number I) call attention to the danger in the use of chloroform in eclampsia. For the general treatment of eclampsia they formulate the following five principles:

(1) "The products of metabolism requiring elimination should be reduced." To fulfil this requirement they pay particular attention to diet, and especially limit the ingestion of "red meat."

(2) "Elimination of metabolic products should be favored." This is accomplished by sweating, induced by application of heat, by diuresis favored by ingestion of large amounts of water, and by elimination through the intestinal tract.

(3) "High blood pressure should be reduced." Venesection as formerly employed has given way to the use of chloral, nitroglycerin, and

veratrum viride. An initial dose of thirty grains of chloral is given per rectum, and repeated from every four to six hours, according to the restlessness. Nitroglycerin, grain one-fiftieth to grain one-hundredth is given hypodermically every two or four hours. If after the use of these drugs the blood pressure is still high Squibb's fluid extract of veratrum is given, the initial dose being five minims hypodermically. After this a dose of one to three minims is given every four hours if the pulse does not drop below one hundred.

(4) "If the toxemia of the patient, as shown by the urine, blood pressure and general condition, does not markedly improve under the preceding principles of treatment, or if an eclamptic seizure occurs, the uterus should be emptied." In carrying out this rule the fifth principle is emphasized and is as follows:

(5) "In all methods of treatment that should be avoided which will either reduce the resistance of the patient or seriously damage any of her organs." To empty the uterus manual dilation is advised if the cervix is soft. If the cervix is long and rigid they advise the use of an elastic bag even though the delivery will be delayed for several hours. If the elastic bag fails to dilate the cervix it is considered a proper case for vaginal Cesarean section.

The point of the paper is particularly to emphasize the danger of chloroform as an anesthetic in an eclamptic patient. The writers insist on the liver changes, namely, a periportal thrombosis and hemorrhage, and a central necrosis, as being characteristic of eclampsia. They point out the similarity of liver lesions in cases of delayed chloroform poisoning and in cases of death immediately following chloroform anesthesia. The natural conclusion is that chloroform would aggravate any liver lesion that had been caused by the toxemia. On the other hand, their study on after results of ether showed that it had no effect at all on the hepatic parenchyma.

Besides the liver lesions, it was found that chloroform caused cloudy swelling, fatty degeneration, and hemorrhages in the renal epithelium. After using ether the kidney was found to be practically normal.

At the Sloane Maternity Hospital no attempt is made to control the convulsions by means of an anesthetic. This end has been sought through lowering the blood-pressure and quieting the nervous system by the use of veratrum, chloral and nitroglycerin; whenever delivery was necessary ether was used as the anesthetic. Of twenty patients treated thus one died, a mortality of five per cent. This patient was almost moribund when admitted. In the last twenty cases of eclampsia in which chloroform was used there were five deaths, a mortality of twenty-five per cent.

G. K.

VACCINE THERAPY IN OBSTETRICS AND GYNECOLOGY.

WILLIAMS, Cragin, and Newell have, as a committee for the American Gynecological Society, investigated the use of vaccines in obstetrics and gynecology. The report represents a study of the literature, and no original investigations are reported. The evidence at present available

seems to allow the following tentative conclusions concerning the value of vaccine therapy in obstetrics and gynecology:

(1) Opsonins undoubtedly play a part in the production of immunity. On the other hand the determination of the opsonic index is technically very difficult and is subject to such variations that it is not available as a diagnostic or prognostic guide, and even among trained bacteriologists there is considerable skepticism as to its practical value.

(2) Immunization by means of vaccine is a well established prophylactic measure against certain infectious diseases, notably typhoid, cholera, plague, and dysentery. Vaccine therapy is undoubtedly a valuable remedial agent in local infection due to the tubercle bacillus or the staphylococcus, less so in local infections due to other pathogenic bacteria, while there is considerable doubt as to its efficiency in acute general infections.

(3) In chronic gonorrheal arthritis and urethritis it is a valuable adjunct to other treatment and occasionally may lead to a cure alone. It appears to be useless in the acute infections, while it is more efficient in the treatment of the vulvovaginitis of children than any other means, but even here it does not always result in cure.

(4) In infections of the urinary tract, especially those due to the colon bacillus, it sometimes results in symptomatic cure, but rarely relieves the bacteriuria. The scanty reports concerning the pyelitis and the pyelonephritis of pregnancy, indicate that the vaccine therapy is no more efficient than the usual treatment by rest in bed and the administration of salol or urotropin, as in neither does the bacteriuria disappear until after the termination of pregnancy.

(5) In certain cases of endometritis, it appears to reinforce the curative influence of curettage. The reports concerning its use in pelvic inflammatory diseases are too scanty to justify conclusions, but it would seem that it may be of value only in chronic postoperative cases with sluggish fistula formation.

(6) As the ordinary localized puerperal infections, irrespective of the nature of the offending bacteria, tend to spontaneous cure, the field for vaccine therapy is practically limited to acute general infections where it unfortunately appears to be of little value, and the most that can be said from the reports available is that its employment does no harm. G. K.

PEDIATRICS.

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THE EARLY STAGE OF ACUTE ANTERIOR POLIOMYELITIS.

MULLER (*Münchener medizinische Wochenschrift*, Number XLVIII, 1910) gives three cardinal signs on which to base a diagnosis in the early stages. (1) A tendency to perspiration, even in children, with marked gastrointestinal symptoms. (2) Extreme hyperesthesia which is very charac-

teristic in the disease. This sign appears very early and quickly disappears. In the early stages the patient lies passively in bed, and the slightest movement, especially of the vertebral column, causes him to cry out. There is complete flaccidity of the muscles and often violent pain, especially in the legs. The absence of rigidity thus distinguishes the condition from meningitis. (3) Leukopenia which persists in spite of the fever. Among other early signs are localized tenderness and weakness of the legs and abdominal muscles. Frequently there is great disproportion between the paralysis and the severity of the general symptoms. The cerebrospinal fluid flows freely, is always clear and shows the presence of lymphocytes. The writer thinks the infection enters through the respiratory or digestive tracts or by the tonsils, spreads along the lymphatics of the nerves to the subarachnoid space of the spinal cord, and thence by the way of the lymphatics accompanying the vessels to the cord.

A. D. H.

TYPHOID FEVER IN CHILDREN.

ADAMS (*Pediatrics*, XXII, 1910, page 341), after studying five hundred fifty carefully selected cases of typhoid fever in children, states that in children it differs only in degree from the disease in the adult. The clinical phenomena differs somewhat, but the structural changes are identical, regardless of age. The disease was more common between the months of July and October, with a preponderance in August, and boys and girls were about equally affected. Only one of this series was under one year of age, and there was a decided increase after that age, and especially after the age of four. The mode of conveyance could not be traced in most of the cases. The mode of onset in most of the cases was insidious with diarrhea and malaise. The fever was remittent in type and terminated in lysis. Delirium was frequent from the high temperature. Rose spots were present in only twenty-five per cent of his cases, probably on account of many of these cases being negroes. Three per cent were attacked with perforation and died. The treatment consisted mostly of hydrotherapy for the fever and a semisolid diet. Cereals, eggs, and gruel were added to the prescribed routine of milk and broths.

A. D. H.

CEREBROSPINAL MENINGITIS TREATED BY INTRAVENTRICULAR INJECTIONS OF FLEXNER'S SERUM.

FISHER (*Pediatrics*, XXII, 1910, page 222) reports the case of a girl two months old who was admitted to the Sydenham Hospital October 2, 1909, on the fourth day of an attack of cerebrospinal meningitis. After three successive dry taps by lumbar puncture, and as the symptom continued, on the 20th of October the right lateral ventricle was tapped through the anterior fontanelle and fifteen cubic centimeters of turbid fluid were withdrawn, smears from which showed meningococci. The ventricles were then irrigated with normal saline solution at 105° Fahrenheit, and then twenty-five cubic centimeters of Flexner's serum were injected into the ventricle, and this was repeated on two subsequent occasions, preceded by irrigation. Sixty-five cubic centimeters of serum in all being injected, thirty-seven cubic centimeters also were used by the intraspinal route. After two and one-half months' stay in the hospital, the child was discharged cured. It was breast-fed throughout the attack.

A. D. H.

CLINICAL SIGNIFICANCE OF CURDS OF INFANTS FECES.

TALBOT (*Boston Medical and Surgical Journal*, February 3, 1910) says that casein curds when shaken up with cold water sink, are tough and contain fat unchanged in their meshes, while the small white pinhead curds contain very little protein and consist of fatty acids and soap, and are suspended when shaken up in cold water. If doubt exists as to whether the curds are fat or casein, if placed in ten per cent formalin for six hours, the casein will become hard, and the fat quite soft. The presence of either in the stools is indicative of improper assimilation, and the food should be regulated accordingly. The reduction of one of these foods should be followed by increase of the other, so as to maintain the caloric equivalent.

A. D. H.

RECENT PUBLICATIONS.

REVIEWS.

DISEASES OF THE HEART.*

THE prompt appearance of a second edition of Doctor Mackenzie's valuable book on "Diseases of the Heart" indicates the interest manifested in this work. As a pioneer in the clinical use of graphic methods in the classification of cardiac irregularities, Mackenzie's opinions have naturally aroused unusual interest. The work is in no sense a complete review of the subject of heart disease but deals chiefly with two important aspects. The first of these is the nervous symptoms associated with angina pectoris; the second, the irregularities of the heart—their prognosis and treatment. The numerous graphic records give the book great value, even though the interpretation of these records may be subject to later revision. Already, indeed, Mackenzie's "nodal rhythm" is being more generally attributed to auricular fibrillation. A short chapter on the electrocardiogram by Thomas Lewis rounds out the discussion of the irregularities. The one-sided character of the work will disappoint those who expect a complete treatise, but, as a monograph, it is invaluable to those who are following this new field of cardiac pathology.

A. W. H.

*By James Mackenzie, M. D., M. R. C. P. Second edition. Oxford University Press, 35 West Thirty-second Street, New York, 1910.

INEBRIETY.*

AT the present time, when society is so much interested in the prohibition movement, the publication of Doctor Crother's book on inebriety will interest all classes and professions. It will particularly appeal to physicians, however, because the subject is dealt with as a disease to be diagnosed and treated in a manner similar to that taken with other diseases. It is a reproach to the medical profession that so few are acquainted with the various types of inebriety and their scientific treatment. Doctor Crothers is well qualified to write upon the subject, for he has devoted practically

a lifetime to its study, prevention, and treatment, and his book although not very large, contains a mass of information. This may be classified into a description of the various types of inebriates, with their causes and the symptoms in each; a very clear and practical series of chapters on the treatment; and, finally, a discussion of the medicolegal relations of inebriety. This book is well written and attractively printed and bound and should be read by physicians and every one who is interested in the effects of alcohol or in true temperance.

C. D. C.

*By T. D. Crothers, M. D., Superintendent of Walnut Lodge Hospital, Hartford, Connecticut; Editor of *Journal of Inebriety*, et cetera. Harvey Publishing Company, Cincinnati, Ohio, 1911. Price \$3.00.

DIAGNOSIS OF SYPHILIS.*

IN this book Doctor Malsbary gives one a most concise and yet comprehensive presentation of a very old and difficult subject. The style is simple, clear, and interesting. The amount of work presented must have been great, as evidenced in part by the large bibliography. The work should be of particular value at this time to the busy medical man, by reason of its inclusion of all the modern laboratory diagnostic methods as used in the study of syphilis. The accepted clinical value of these methods is discussed, while the differential diagnosis of the many syphilitic manifestations are most intelligently presented. The publishers have coöperated by putting out a most readable book in attractive style, as regards binding, paper and type.

J. F. B.

*By George E. Malsbary. Harvey Publishing Company, Publishers, Cincinnati, Ohio.

DISEASES OF THE NOSE, MOUTH, THROAT AND LARYNX.*

THIS work, which is intended to meet the requirements of the beginning student and general practitioner, covers the ground in a very satisfactory manner. While practically all essential points are brought out and very little of real value missed, there are few superfluous words.

Although condensed in every possible way, all facts being presented in the most compact manner, the book is very readable and every paragraph easily grasped by the mind. The systematic arrangement renders all subjects easily accessible.

The author has achieved success in producing a book to meet the needs of the general practitioner.

The illustrations on the whole are excellent, particularly those dealing with the anatomic and pathologic features.

The translation has been done seemingly with painstaking care and exactness, the interests and intent of the author being well carried out.

R. C. P.

*By Doctor Alfred Bruck, Berlin. Edited and translated by F. W. Forbes Ross, M. D. (Edinburgh), F. R. C. S. (England), assisted by Frederick Gans, M. D. Published by Rebman Company, 1123 Broadway, New York City, New York.

AMERICAN PRACTICE OF SURGERY.*

THE seventh volume of this great work is devoted to regional surgery. The first chapter, surgical diseases and wounds of the pelvic and gluteal regions, was written by Charles H. Peck, M. D., of New York City. It deals largely with malformations and does not include any of the structures that lie within the pelvis.

The second chapter, on surgical diseases of the extremities, is not all that the title implies, but is a collection of left-over material assigned to Charles A. Porter, M. D., and William C. Quinby, M. D., to see what they might be able to do with it. Parts of it are very essential and for scrap material it is well arranged.

The chapter on surgical disease and wounds of the abdominal wall was written by J. D. Griffith, M. D., of Kansas City. It includes incisions, preparation and the after treatment of abdominal operations.

Surgery of the pericardium, heart and blood-vessels, written by Robert G. LeConte, M. D., and Francis T. Stewart, both of Philadelphia, first treats of the anatomical relation of the structures which may be involved in surgical operations, then follows a careful description of the recent operative procedures in this new field of surgery.

Surgical diseases and wounds of the stomach and esophagus, by Alfred J. Ochsner, M. D., of Chicago, is an excellent chapter. All of the important surgical operations upon the stomach are carefully considered in brief text and fine illustrations.

J. Chalmers Reeve, Jr., M. D., has written well about surgical diseases of the diaphragm and subphrenic abscess. Surgical treatment of general septic peritonitis and tubercular peritonitis is considered in separate papers.

Doctor E. Wyllys Andrews, of Chicago, has gone far into the consideration of abdominal hernia, giving much attention to unusual forms and the methods of operating.

Doctor Andrew McCosh, of New York City, writes about the inflammatory and other diseases of the vermiform appendix. The writer died soon after the preparation of this article. It is one of the best which the book contains.

Surgical diseases and wounds of the intestines, omentum, and mesentery, by Charles W. Oviatt, of Oshkosh, Wisconsin, is well illustrated by drawings and colored plates. One, the author's own case, is unusual, showing a foreign body (a lead pencil) in the ileocecal portion of the intestine. Seven plates are used to describe the Connell method of suturing the intestines.

Surgical diseases and wounds of the anus and rectum, by James P. Tuttle, M. D., of New York and Samuel T. Earle, M. D., of Baltimore, well illustrated and carefully written, make the closing chapter.

This volume is a fine piece of work, very interesting, and carefully arranged.

C. G. D.

*By Joseph D. Bryant, M. D., LL. D., and Albert H. Buck, M. D. Volume VII. New York: William Wood & Company, Publishers.

PELLAGRA.*

THE wide prevalence of pellagra in the United States makes the appearance of this translation particularly opportune. The original is largely based on Professor Lombroso's earlier monograph on pellagra and it emphasizes Lombroso's opinion that the use of corn is the chief and possibly the only factor in causing this disease. The translators have given us a very readable text and they have added numerous illustrations from various sources. Their many additions and annotations have greatly increased the value of the book; and especially so since these tend to round out the otherwise one-sided views of the original. The book is closed with an extensive bibliography, with copies of the Italian laws against pellagra, and with tables of the corn production in the United States. It can be thoroughly recommended to those who desire expert guidance in this subject.

A. W. H.

*By Doctor A. Marie, Paris, France. With introductory notes by Professor Lombroso. Authorized translation from the French by C. H. Lapinder, M. D., and J. W. Babcock, M. D. With additions, illustrations, bibliography and appendices. The State Company, Publishers, Columbia, South Carolina, 1910.

A TEXTBOOK ON MEDICINE—FOR STUDENTS AND PRACTITIONERS.*

THE seventeen German editions through which Professor Strümpell's book has passed testifies to its popularity in its mother country. It is a pleasure to note the appearance of a new American edition under the editorial supervision of Doctors H. F. Vickery and P. C. Knapp. As compared with other textbooks on medicine, Doctor Strümpell's is especially strong on the diseases of the nervous system, which take up about two-fifths of the text. An additional chapter on mental diseases following the classification of Krapelin, and written by one of the American editors, emphasizes this feature of the work. Altogether it is one of our best textbooks on internal medicine.

A. W. H.

*By Doctor Adolf von Strümpell, Professor of Special Pathology and Therapeutics at the University of Leipsic. Fourth American edition. Translated by permission from the seventeenth revised German edition. With editorial notes, additional chapters, and a section on mental diseases by Herman F. Vickery and Philip Coombs Knapp. With six plates and two hundred and twenty-four illustrations in the text. Volume I. New York and London: D. Appleton & Company, 1911.

NUTRITION AND DIETETICS.*

THIS elementary volume is intended as a textbook for nurses and medical students. It accordingly contains several chapters on the physiology of digestion and nutrition, which are of necessity brief and, from the viewpoint of the physician, inadequate. A similar criticism applies to the remainder of the subject matter. The chapters on infant feeding are more complete and fully up to date. The presentation is clear and concise and the arrangement excellent.

V. Z.

*By Winfield S. Hall, Ph. D., M. D. Pages, 298. D. Appleton & Company, New York.

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ORIGINAL ARTICLES.

MEMOIRS.

SYMPOSIUM ON ANTERIOR POLIOMYELITIS*

LANTERN-SLIDE DEMONSTRATION OF THE HISTOPATHOLOGY OF ANTERIOR POLIOMYELITIS.

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THE preparations I show you upon the screen are from various specimens of human cords and from several cords of monkeys in which the disease has been experimentally produced at the Rockefeller Institute.

In all of the preparations from the acute cases, changes are present in the meninges, in the blood-vessels, and in the cord substance. The process occurring in the pia mater is an infiltration of its space with cells which are chiefly small mononuclear forms. This infiltration is most intense in the inner layer of the pia and along the anterior surface and fissure. Less commonly the process may involve the membrane around the entire circumference of the cord. These changes may occur in any region of the cord but are usually most marked in the lower levels. The infiltration extends from the pia mater along the vessels into the cord substance. This extension is best seen around the anterior fissure and central artery of the cord. The process affecting the peripheral arteries of the cord is far less intense.

In and about the walls of the involved vessels are collections of cells. These are of the same type as are present in the pia. They lie chiefly in the adventitial lymph spaces but where the process is particularly intense they may be present in the perivascular spaces. In the cord itself there are changes in both gray and white substance. These are more extensive and constant in the gray and especially its anterior horns.

The changes in the cord occur in relation to those of the vessels. There occur, chiefly in the gray substance, focal collections of cells, apparently

*Held before the Clinical Society of the University of Michigan, March 29, 1911.

extensions from the infiltrations around the blood-vessels. The blood-vessels themselves show the same infiltration as the pia. Not infrequently there occur small hemorrhages. Apart from this the cord substance shows changes resembling the edema and necrosis seen in myelitis. Where the changes are best marked the nerve cells show varying degrees of degeneration, many having gone on to complete disintegration and disappearance. The cells present in the altered gray substance are largely small mononuclear forms, but in addition there are found large mononuclear types, epithelioid cells, plasma cells and polynuclear leukocytes. The leukocytes seem to be more abundant in those places where the disturbance is most intense. In and around these collections are degenerated nerve elements, many of which give the reactions of fat. Often there are phagocytes, loaded with fat-reacting inclusions. The nerve cells are usually affected in groups corresponding anatomically to the various vascular arrangements.

The neuroglia cells show evidences, even in the acute cases, of progressive reaction changes.

In the white substance the changes are those of edema, perivascular infiltrations, hemorrhage, and necrosis. In preparations from cords in which the acute process has subsided and the changes present are of a reparative nature, the meningeal infiltration has usually disappeared. The neuroglia elements have undergone proliferative changes. The nerve cells are lessened in number and through the involved parts are found epithelioid cells with inclusions. The infiltration of the vessel wall has changed; lymphocytes are rare and there are present epithelioid cells with inclusions.

In preparations from cases which have reached the chronic, resting stage, the evidences of the former acute process are seen in the atrophic condition of the horns and disappearance of the nerve elements and the reactive changes in the neuroglia.

In addition to the changes affecting the cord there often occurs involvement of the medulla, pons, crura, cerebellum, and deep central ganglia. The changes occurring here are directly related to the extension of the meningeal process along the blood-vessels into the brain substance. The changes are best marked where there are the most vessels. In the hemispheres themselves slight infiltrations are sometimes found extending in from the vessels of the fissure of Sylvius and those at the base of the brain.

Whatever may be the nature of the virus, the histologic process is one which is apparently directly related to the blood-vessels and is of the nature of an exudative inflammation. As a result of the changes in the vessels there must be considerable interference with the integrity of the parts to which they are distributed. The changes in the nerve elements are thus secondary to the vascular alterations.

The localization of the process in the central gray substance of the cord is explainable from the circumstance that its blood supply comes from branches of the anterior central artery which is especially involved in the pathologic process.

1014 Cornwell Place.

THE ROLE OF THE STATE IN THE PREVENTION OF
ANTERIOR POLIOMYELITIS.

GUY L. KIEFER, M. D.

DETROIT, MICHIGAN.

IN the February number of the *Monthly Bulletin of the Ohio State Board of Health* is a paper on the "Prevention of Infantile Paralysis" by Doctor M. Millikin, Health Officer of Hamilton, Ohio. The author says: "I'll tell you a story about anterior poliomyelitis, and now my story's begun: I'll tell you another about its prevention, and now my story is done. After thus paraphrasing Mother Goose, I could, if I stuck strictly to the text assigned me, sit down. However, our secretary evidently expects me to preach all around the text, and, assuming that that is what is really desired, it will be in order to give some résumé of what we have recently learned of this disease." All of the above is a quotation from Doctor Millikin but I cannot even assume that your president wanted me to talk "all around the text," as he has chosen other and more able men to talk on various phases of this subject and it is up to me to say what may occur to me as rational on the subject as indicated.

In our present knowledge of infantile paralysis, one fact has been established beyond any possible doubt, namely, that the disease is infectious, or certainly in some manner transmissible. This being the case it is the very first duty of the state to add anterior poliomyelitis to the list of diseases which are reportable to the department of public health. In many states, and I believe also in Michigan, the State Boards of Health have taken this step. The fact that a disease is added to the notifiable list does not, however, always bring about the desired result. It was many years after tuberculosis had been declared reportable, that it began to be reported and, even now, it is not universally done. To bring about the desired result, that is, the reporting of cases of infantile paralysis, a campaign of education is required and, indeed, among the medical profession. The rank and file of the profession must be informed as to the prevalence of this disease and as to its communicability and they must be taught something of how an early diagnosis can be made. After the profession has been sufficiently awakened on the subject, we are ready to apply to this disease one or more of the methods in vogue for the restriction of communicable diseases, immunization, isolation, and disinfection.

Unfortunately we have as yet no serum with which we can certainly render immunity but there seems to be a drug available by which we can secure at least partial immunity. It has been shown that hexamethylenetetramin (urotropin) will prevent the paralysis in many cases, and whenever the records show an outbreak in any community, it seems to me this remedy should be administered as a prophylactic measure as well as a curative one.

As to isolation much has to be taken into consideration. The reporting of all, or nearly all cases would give us a more or less accurate idea of the size and severity of the outbreak. In Detroit, up to the present time, we have been unable to form any idea of the prevalence of this dis-

ease as our only reports consist of fatal cases and if we accept even our death records as reliable, we must conclude that there have been but few cases of the disease in our city. During the past ten years, to January 1, 1911, there have been but two deaths reported and, accepting the mortality rate as much lower than it is usually reported, we must have had a comparatively small number of cases in all of that time. During this year, however, there have been three deaths reported to date. One during January and two during February. This is due to the fact that there has been some discussion of the subject recently in our local medical society. Assuming now that a better knowledge of the subject on the part of the profession will reveal more cases in our midst, what shall we do as regards isolation of the reported cases? It has always been a fact well known to health officers, that the longer the duration of the infectivity of a given disease, the more difficult is satisfactory isolation. In other words, the people and their physicians, as a rule, will cooperate with us and aid this preventive measure if the imprisonment, as they consider it, is to be of short duration; but the longer that period the more unruly do they become. In Idaho a three weeks' quarantine has been established. Is that of any avail? It has been definitely proven that apparent recoveries from this disease and mild cases may carry the virus for weeks and probably months. It would seem, then, as though a quarantine, or certainly an isolation of the patient, should be continued for a much longer period than three weeks. In the City of New York, the Board of Health has issued a bulletin concerning infantile paralysis. This bulletin describes the symptoms of the disease and gives a variety of information on the subject. Among other things it says: "The duration of the period of infectivity is unknown, which leaves the question of isolation and quarantine unsettled."

Now as to disinfection. It would hardly seem that a general room disinfection after this disease is indicated. We know that the virus is filterable and that it is undoubtedly ultramicroscopic. We know further that the nasopharynx is at least one portal of entry for this virus and that it is also eliminated through the nasopharynx. It would seem, then, as though our disinfection should be, to a great extent, local. Any materials that may have come into contact with the mouth or nose of a patient or of a carrier, if known, should be promptly burned. Especial attention should be paid to the cleansing of the nasopharynx of persons affected with this disease or suspected of being thus affected. I have read somewhere that Wickman does not recommend the cleansing and care of the nasopharynx as a prophylactic measure. To me it seems rational, nevertheless.

It would seem, then, that the duty of the State in the prevention of this disease, would be:—

- (1) The dissemination of knowledge of the subject, as to diagnosis, prevalence, prognosis, and prophylaxis. Such knowledge to be disseminated, first among the medical profession, and then among the people at large.

- (2) The requiring of the reporting of all cases, this to be accomplished by the enactment of a special law, if necessary.

(3) When the disease is epidemic, urotropin should be recommended as a prophylactic.

(4) The establishment of an isolation sufficiently long to cover the infective period of the disease, at least six weeks.

(5) The prompt disinfection (total destruction if possible) of any materials or fomites that may have become infected by contact with the nose or mouth of one suffering from the disease, and—

(6) The recommendation that careful attention be paid to the cleanliness and hygiene of the nasopharynx.

365 Saint Aubin Avenue.

* * *

*THE TREATMENT OF THE DISABILITIES FOLLOWING
ANTERIOR POLIOMYELITIS.*

FREDERICK C. KIDNER, M. D.

DETROIT, MICHIGAN.

THE treatment of the disabilities which follow anterior poliomyelitis, has been forced of late years on the attention of the whole medical profession. The old feeling of hopelessness engendered by lack of accurate prognosis, and the apathy of parents, has been replaced by enthusiasm engendered by the splendid researches into the causes of the disease, and the good results obtained from persistent treatment.

The disappearance of a large proportion of our cripples depends henceforth on the early recognition of the disease and on the untiring efforts of physician and friends. There is no disease which requires more devotion and courage in its treatment—none which better rewards persistence.

The ability of a sufferer from the effects of infantile paralysis to take his place among his fellow men as an active citizen, depends on two factors: First, the prevention of deformity; second, the fullest possible development of the muscles which are not absolutely disabled.

Realization of these two requirements can be reached only by constant watchfulness, and the systematic employment of many distinct methods of treatment. Consideration of all is here impossible. Therefore, I shall attempt merely to outline the measures and procedures which seem to me the most important and valuable.

Mechanical treatment is necessary from the moment a diagnosis is made through the appearance of weakened muscles. This may be at any time from one to ten days after the onset of the disease. It is the signal for immediate measures to protect the weakened muscle groups, which must be put in positions of complete relaxation and rest. This can often be accomplished with the aid of sand bags and pillows. Splints, however, may be necessary. These are easily improvised from heavy iron wire, with the aid of a wrench and vice (Figures I and II.) For instance, suppose a child shows weakness in the anterior muscles of the thigh and in the front of the leg. A posterior splint bent at thirty degrees at the knee, and to a right angle at the foot, will hold the quadriceps relaxed, and prevent stretching of the tibials. Recumbency alone will not do these things. Such a splint must be loosely applied by bandages giving equal pressure, and not constricting at any one point.

Protective treatment alone should be used while pain and tenderness are prominent. As soon as the pain and tenderness begin to subside, gentle massage should begin. It should be carried out with the greatest precautions to prevent even a single stretching of the affected muscles. Each day during this period, careful search should be made for newly affected regions, and as such appear, they too, should receive attention. In many cases a plaster jacket by fixing the spine, seems to limit the spread of the disease, and certainly limits pain.

By such measures, the comfort of the patient is greatly increased, every fiber which may retain its contractility is saved from stretching, and its full power preserved for future use.

To my mind the care with which these details are carried out in the first few days, largely determines the length of the period of convalescence and has a strong influence on the amount of the ultimate paralysis.

Ordinarily, by the end of the second week, the patient is beginning to recover from the prostration of the acute disease and the full extent of the damage done is to be determined. The case now enters the period which may be called that of spontaneous recovery. This period continues for at least two years. No acknowledgment of permanent paralysis should be made until this time has elapsed. A recent case demonstrates this fact. A small boy, who was paralysed fourteen months ago, came to the hospital two months ago. He had no apparent control of either leg. Under careful treatment for the last six weeks, he has gained the ability to go through all the motions necessary for walking, although he is unable to bear much weight.

It is during this period that the physician's ingenuity and persuasive powers are most severely taxed. He must be constantly hopeful and instill into the family of the patient a spirit of thorough persistence.

As soon as the patient shows a desire to walk, ambulatory apparatus which completely protects all the weakened muscles becomes necessary. Its object is to prevent contracture and to replace weakened muscles. It must be light, durable, and free from all constricting bands.

At the same time active measures are to be adopted for the restoration of function. Electricity is difficult of application, and to my mind of very doubtful value. Massage, as generally used, is inefficient. To be useful it must consist of deep muscle kneading with percussion with heavy vibration, but without roughness sufficient to cause pain. It has a strong influence on the blood supply and prevents atrophy. I say this advisedly, in spite of the recently expressed opinions of Sachs and Taylor, of New York, who consider the time spent on massage merely wasted. Heat is extremely valuable in its effect on the vasomotor system. It can be easily applied by the incandescent electric light enclosed in a tin shield. It overcomes the stasis in the vessels, and the cold, stiff feeling in the part. Thorough baking for twenty minutes each day will keep a limb warm for hours and often wholly overcome its cold clammy condition.

As soon as soreness and pain have completely disappeared, muscle training, the most important factor in restoration of function, must begin. It must be skillfully and carefully applied in order to prevent overstretch-

ing of the weak muscles. It is best begun by simple passive motion, carried on by the person in charge of the case. As the patient's confidence is won he must be encouraged to make an effort to reproduce these passive motions, the actual work being done by the attendant. For example, if the tibial muscles are paralyzed, the attendant should dorsiflex the foot slowly and rhythmically, meanwhile explaining to the child what he is attempting to accomplish. Little by little, if there is any contractility left in the dorsiflexors, they will begin to take up their function. As their strength increases, less and less of the actual motion will have to be carried out by the attendant, while more and more of the work will be done by the patient's own efforts. At last a stage will be reached where

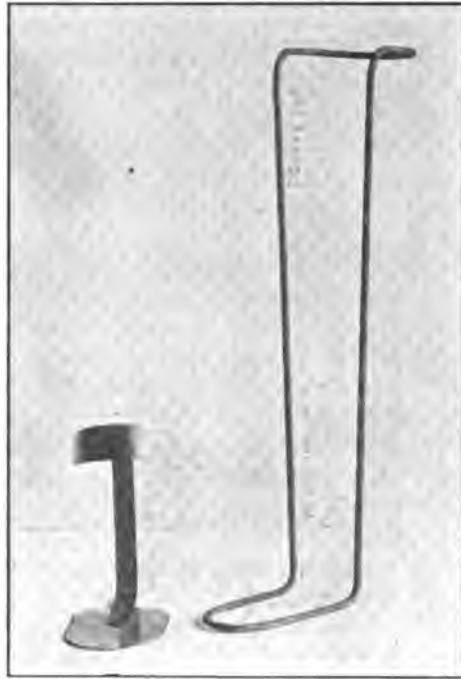


FIGURE I.—Arm and Hand Splint.

The arm splint is made of flexible metal, and can be placed at any angle for the gradual correction of hand deformity.

FIGURE II.—Leg and Foot Splint.

The leg splint is very cheap, and can be bent as needed to hold all leg muscles at rest.

the patient may be allowed to perform the motions without assistance. The same careful conservative method must be carried out with each group of affected muscles. At no time should the protecting apparatus be omitted, except during the actual treatments, until the affected muscles have so far recovered that all danger of contracture has disappeared. Only after weeks of education should the parents be allowed to undertake these methods of muscle training. It is better that limbs be held in good position by apparatus, without other treatment, than that muscles should be

overstrained by too much enthusiasm. Massage, in protected positions, may always be allowed and encouraged at home, and is, in fact, absolutely necessary to prevent atrophy.

In cases treated from the first by such a course, we shall know at the end of two years what our final results are to be, and we shall have all the structures of the body in the best possible condition for reconstructive surgery.

At the end of two years it is usually safe to say that no further spontaneous improvement will occur. We then reach the time for permanent measures. The worst cases to handle are those in which there is more or less paralysis of the spinal groups of muscles. Scoliosis, the result of unequal pulls on the vertebræ, is most intractable and very often means the permanent use of rigid jackets. Attempts at cure depend on decreasingly complete support, with education of the muscles. It seems to me that Professor Lange's metal bars fastened to the spinous processes, may be applicable to these cases. He has successfully used steel wire bars plated with tin, and fastened to the spinous processes with silk, in a number of cases of spinal caries. The balance of the spinal column is so sensitive and the leverage so great that no artificial ligaments or transplanted muscles can hold.

In the treatment of the limbs, however, there are a number of procedures which enable us to improve function. Most prominent of these is tendon and muscle transplantation. It is applicable in many cases where small groups of muscles are paralyzed. For instance, strong peroneals may be brought from the back of the foot, and made to serve the purposes of weakened tibials. Strong hamstrings or a strong sartorius may do excellent service when implanted into a patella tendon. Slips from a trapezius may do good work when implanted into a deltoid. The technic of these operations, is always more or less difficult and their adaption to any given case calls for great ingenuity. The range of application of any given muscle to a new situation, is greatly increased by the use of silk strands to lengthen the tendon used. My feeling in regard to this procedure is that it has great usefulness, but that excessive enthusiasm in its use is apt to do more harm than good by decreasing the total efficiency of a given limb.

Another extremely useful operation is that of inserting artificial ligaments. Its object is to replace paralyzed tendons by firm, strong bands of foreign material, which shall oppose active muscles. An excellent opportunity for the insertion of these ligaments, which was introduced by Professor Lange, is afforded in the very common cases of toe-drop, following the paralysis of the tibial muscles. The technic of the operation is not difficult, but it requires extreme attention to the details. The most satisfactory material is the silk prepared, as is this which I shall pass around. It is a corrosive silk impregnated with paraffin to overcome its irritating qualities.

If toe-drop exists, incisions are made over the tibia and fibula at the junction of the middle and lower thirds, and over the inner surface of the scaphoid and the outer surface of the cuboid. With a strong needle,

silk is first fastened through the periosteum of the tibia and fibula. A long blunt instrument is then passed from each of the lower incisions beneath the skin and fibers of the anterior ligament, if possible, to the corresponding incision above. The long ends of silk are then drawn back to the lower incisions and there again made fast, with tension just sufficient to hold the foot in very slight dorsiflexion. The wound is closed and the foot put in plaster for from one to three months. Protected motion is then allowed for three months more. Finally, apparatus can be entirely discarded. A foot so treated will present a flat firm base and allow some



FIGURE III.—This splint with simple "step" joint preventing toe drop, at ankle, but no joint at knee, can be made roughly but serviceably for from six to eight dollars. It is moderate in weight, and wholly prevents stretching of the quadriceps or anterior leg muscles. The joint at the ankle springs open, allowing removal of shoe and foot piece from rest of splint. This makes it much easier to put shoe on a weak, flabby foot.

use of the gastrocnemius. I have had no experience with Meisenbach's rubber muscles.

When the paralysis of the limb is so complete that these measures are out of the question, arthrodesis or fixation of joints is our chief reliance. To my mind, it is best to rely on apparatus with massage and other measures to promote growth, until the child is well grown, twelve years or more. Nothing is more unsatisfactory than a limb which has grown crooked after erosion of joint cartilage. I am well aware that very frequently, destruction of joint surfaces does not always interfere with growth. Still, I feel that we ought not to take away any chances of

good length in the limbs. We are justified, however, in resorting to arthrodesis, in patients who cannot be kept under observation, and who will certainly neglect their apparatus. For a short stiff leg is far better than a contracted and deformed long one. Hibb's operation in which he uses the patella as a bone bridge without destroying the surfaces of the knee-joint, seems to me an excellent one.

So far, I have considered only the cases which have been treated skillfully from the onset of the disease. What of those which are not seen until late?

In treating old cases, with well established contractures, our first step is to determine whether any power of contraction remains in the weakened muscles. Jones and Tubby, of Liverpool and London, lay down the precept that the inability of a stretched muscle to contract in its accustomed position is no proof of complete loss of power. Further stretching may show a remnant of contractility. For example, given a patient with wrist-drop of ten years duration, probably voluntary efforts at extension will show no motion. Should the surgeon still further flex the wrist, most frequently slight power of extension will appear. Be this ever so small, if it appears at all, prognosis for a useful hand is extremely good.

When it is determined, that supposedly paralyzed muscles in a deformed member still have some power, our first step must be to put them in a position of relaxation. This may be done in one of two ways. First, by gradual correction with some such apparatus as this malleable iron splint, of a type originated by Jones and Tubby (Figure III.) Second, by forcible correction with wrenches, or other powerful tools combined with tenotomy and division of other soft parts. In the correction of these deformities, bone operations frequently become necessary. For example, in the contracted calcaneus feet, due to paralysis of the gastrocnemius, Whitman's operation of partial resection of the astragalus, erosion of the cartilages of the tibia and fibula and backward displacement of the whole foot may be necessary. In paralytic equinovarus, wedge-shaped osteotomy of the cuboid or astragalus may be necessary before correction is possible. Here again, ingenuity and careful thought are necessary to give the best results.

In conclusion, I wish to impress three points. First, treatment must be begun on the first day of the disease. Second, persistence and courage are the keynotes of a successful result. Third, no case is so bad that treatment cannot very markedly improve it and oftentimes make the difference between a complete cripple and a useful citizen.

DEMONSTRATION OF TWO CASES.

CASE I.—This patient is ten years of age. She had infantile paralysis one year and two months ago. There has been no treatment until recently. As may be seen, her knee is rigidly fixed at about ninety degrees. She has a rigid toe-drop of moderate degree and firmness. Apparently there is complete paralysis of the quadriceps and anterior group of leg muscles.

In such a case, the first step in treatment is correction of the deform-

ities, preferably by gradual force applied by means of elastic bandages. If this method is not successful, tenotomy of the Achilles tendon and of the hamstrings must be performed.

After correction of the deformities, there will probably be a distinct return of power in the overstretched quadriceps and anterior leg muscles.

Should this power not return, an arthrodesis at the knee to give a stiff knee-joint should be performed.

The feet may be treated by the insertion of artificial silk ligaments to support the toes, by tendon transplantation, or by arthrodesis of the ankle.

CASE II.—This man was working over a gas engine. He was overcome by the fumes, had headache and fever and awoke the next morning with some malaise. This seems to represent the whole acute stage of the disease. On getting up that morning, he found that he was unable to lift his toes from the floor and has since walked dragging them. There is weakness of the tibial muscles and quadriceps but no complete paralysis.

In this case the prognosis is excellent. Probably with a protective splint there will be a complete recovery.

32 Adams Avenue West.

* * *

THE 1910 EPIDEMIC OF POLIOMYELITIS IN HILLSDALE COUNTY, MICHIGAN.

WALTER H. SAWYER, M. D.
HILLSDALE, MICHIGAN.

A STUDY of the recent epidemic of poliomyelitis in Hillsdale county is interesting only as it corroborates the experience in other localities in which this disease was prevalent. The epidemic apparently began in the county the last week in July and ceased early in November. There were, however, two cases reported previous to the date mentioned, one on May 1, and one May 25, both in the same neighborhood, about three miles apart. In the latter case there had been a death the year before from what was then diagnosed as cerebrospinal meningitis but which the attending physician now believes to have been polioencephalitis. There were no other cases reported until July 24, when one occurred in Hillsdale, after which the disease spread rapidly throughout the city and county.

During the month of July there were three cases; during August, thirty; during September, twenty-six; during October, nine; and during November, two, the last cases recorded being November 10. So far as it has been possible to complete the histories, there were seventy-three cases, with thirteen deaths. Of this number, four deaths were attributed to meningoencephalitis without symptoms of bulbar paralysis. In eight cases, death was due to paralysis of respiration. Ten patients with bulbar symptoms recovered. The spinal type of the disease with more or less permanent paralysis of one or more extremities occurred in forty-eight cases. No autopsy and no pathologic examination was made in any of the cases.

The ages of those attacked by the disease were from two to seventy years, and are classified according to ages as follows:

TABLE I.

Cases of Anterior Poliomyelitis Arranged According to Ages.

AGES.	CASES.
Under five years	11
Between five and ten years.....	22
Between ten and fifteen years.....	12
Between fifteen and twenty-five years.....	13
Between twenty-five and forty years.....	10
Aged forty-three	1
Aged fifty	1
Aged seventy	1

71

(Two patients' ages not stated.)

It has been possible to report only those cases in which there were more or less persistent symptoms of paralysis. The abortive type of the disease, if it existed, was probably unrecognized. As near as it has been possible to secure the information, no members of the family in which the reported case occurred were sick in any way about the same time except in two instances in my own practice. In each of these another child was ill without paralysis but otherwise with similar symptoms.

I am impressed with the fact that many cases of the abortive type of the disease were overlooked and may have been the unknown contagious factor. As an instance of this, I noticed a bookkeeper in an office had a peculiar gait and upon inquiry as to the cause he said he was ill a few days in September since which time one leg had been weak. Though I had seen him almost daily, my attention had not before been called to this defect. He probably had had a mild type of the disease.

In a large percentage of the families in which the disease occurred there were other children, but in only four families was there a second case. In two of these, two children were attacked the same day. In another there was an interval of twelve days between the onset of the disease in the two cases and in the third an interval of nine weeks.

The conclusions to be drawn from the epidemic in our locality are: (1) The disease is probably contagious. (2) The susceptibility to it is not general but rather occasional. (3) All may be unsusceptible carriers of the germs. (4) The paralysis is not necessary to the disease though a common manifestation.

If this hypothesis of the contagiousness of the disease is ultimately proven, the control of an epidemic is fraught with unusual difficulties. If the nasopharynx is the point of entrance, as well as the origin of the infection, something may be accomplished through disinfection of these cavities. The fact that a period of immunity is established by the disease gives hope that some immunizing agent may be developed, the general use of which before the months of greatest prevalence may stamp out a disease which bids fair to be a national scourge.

An attempt has been made in the accompanying map of Hillsdale county to show graphically certain features of the disease in each township as follows (Figure I):

- (1) The dates show the beginning of the disease in each case.

(2) The letter "D" indicates that the case resulted fatally. The numeral following the letter indicates the day of death.

(3) As nearly as possible, the dates represent the exact location in the township where the patient with the disease resided and the day of the beginning of the disease.

HILLSDALE COUNTY

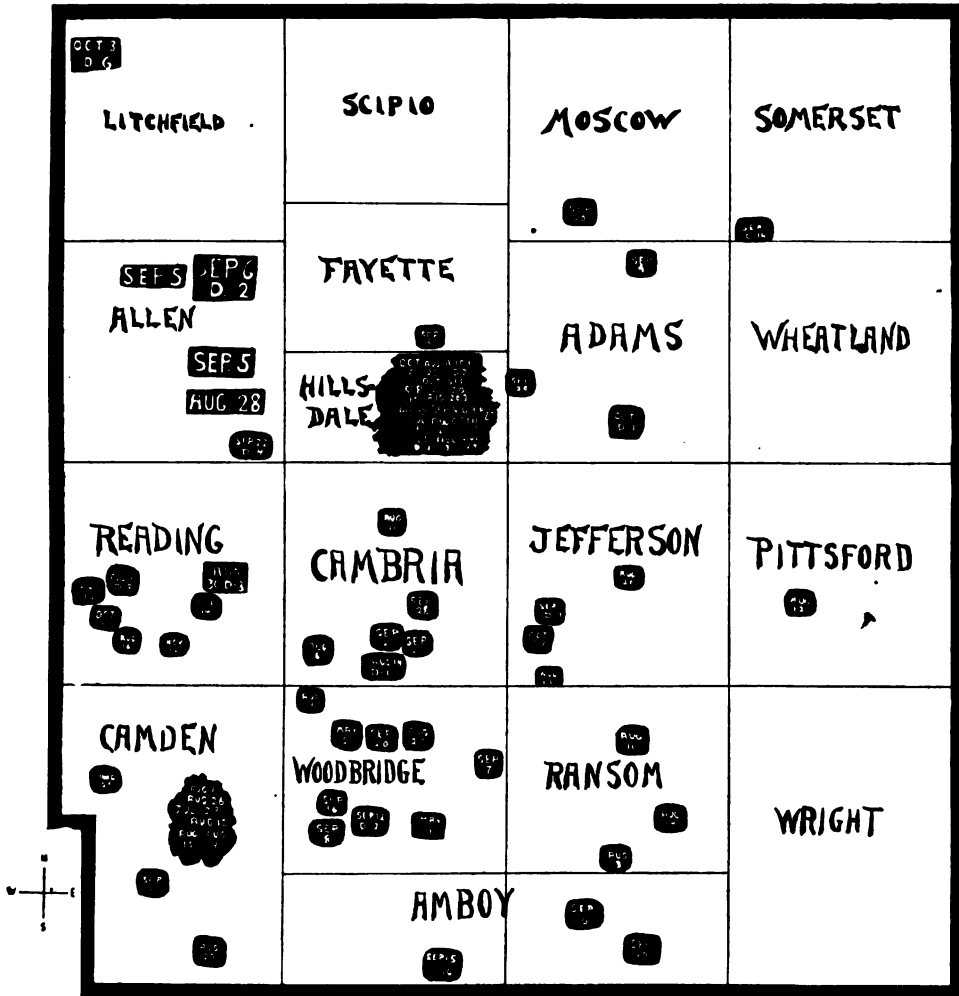


FIGURE I.

In Table II the townships have been listed from north to south, beginning with Litchfield, the northwest township. Each township is credited with the total number of cases and total number of deaths. For example, naturally, HillSDale, the most densely populated township, has the largest number of cases, namely, eighteen, with three deaths.

The question of the etiology of the disease still being in doubt, an attempt

has been made to solve this problem from a study of the map, but with no very satisfactory results. All that can be said is that the three townships which escaped the disease are all situated on the boundaries of the county. One of the townships is situated in the extreme southeast corner of the county, the greatest distance of any from Hillsdale township, the area most affected. The western half of the county suffered most, fifty-eight cases developing in this area, in comparison with fifteen cases in the eastern half of the county.

TABLE II.

Townships with Number of Cases and Deaths, Arranged According to Location in the County, from North to South, Beginning with the Extreme Northwest Township.

TOWNS.	CASES.	DEATHS.
Litchfield	1	1
Allen	5	2
Reading	7	2
Camden	9	0
Scipio	0	0
Fayette	1	0
Hillsdale	18	3
Cambria	6	1
Woodbridge	9	1
Amboy	4	0
Moscow	1	0
Adams	3	1
Jefferson	4	1
Ransom	3	0
Somerset	1	1
Wheatland	0	0
Pittsford	1	0
Wright	0	0
Total	73	13

An attempt to establish any relationship between the number of cases and the course of the streams or the highways proved futile.

The total number of cases in the county was seventy-three, with thirteen deaths or a mortality of 17.8 per cent. These figures approximate the mortality percentage given by Manwaring in an epidemic of anterior poliomyelitis at Flint, Michigan, where the mortality was 16.6 per cent.

TABLE III.

Showing Months in Which the Disease Occurred with Number of Cases and Deaths.

MONTH.	CASES.	DEATHS.
May	2	0
July	3	0
August	31	4
September	27	6
October	9	3
November	1	0
Total	73	13

In Table III the cases have been arranged according to the months in which the disease occurred, together with the number of deaths to be credited to each month. As with other epidemics of anterior poliomyelitis, the greatest number of cases occurred during the hot months, although

there was an undue proportion of cases in September and October and a smaller number than was to be expected in July. The number of cases in each month is too small to make a comparison of death rate of any importance.

TABLE IV.
Fatal Cases Arranged According to the Day of Death.

DEATH.	CASES.
First day	2
Second day	3
Third day	4
Fourth day	1
Sixth day	1
Seventh day	1
Fourteenth day	1
Thirty-seven days	13

In Table IV the cases have been arranged according to the day of death. That infantile paralysis is rapidly fatal in some cases is shown by a study of this table, since two-thirds of the patients died within three days. In the remaining cases death occurred from the fourth to the fourteenth day.

54 Howell Street.

TRANSACTIONS.

CLINICAL SOCIETY OF THE UNIVERSITY OF MICHIGAN.

STATED MEETING, MARCH 29, 1911.

THE PRESIDENT, REUBEN PETERSON, M. D., IN THE CHAIR.

REPORTED BY JOHN WILLIAM KEATING, M. D., SECRETARY.

READING OF PAPERS

THE HISTOPATHOLOGY OF POLIOMYELITIS ILLUSTRATED BY LANTERN SLIDE DEMONSTRATION.

DOCTOR ALBERT M. BARRETT contributed an interesting talk on this subject. (See page 145).

THE ROLE OF THE STATE IN THE PREVENTION OF ANTERIOR POLIOMYELITIS.

DOCTOR GUY L. KIEFER, of Detroit, read a paper bearing this title. (See page 147).

THE TREATMENT OF DISABILITIES FOLLOWING ANTERIOR POLIOMYELITIS.

DOCTOR FREDERICK C. KIDNER, of Detroit, read a paper on this subject. (See page 149).

THE 1910 EPIDEMIC OF POLIOMYELITIS IN HILLSDALE COUNTY, MICHIGAN.

DOCTOR WALTER H. SAWYER, of Hillsdale, read a paper bearing this title. (See page 154).

DISCUSSION.

DOCTOR RUSSELL S. ROWLAND (Detroit): I shall limit my remarks concerning infantile paralysis to conditions as they existed in Detroit during the past year, from January to December, 1910. These statistics are in many ways incomplete, but they give a general idea of the extent and character of the disease in this locality.

My report is based upon personal interviews and only cases occurring in the physician's own practice have been included. Consultation cases, hospital cases, and some thirty doubtful cases have been excluded. I think it probable that a certain number of cases of the milder form and also fatal cases were missed because of lack of experience with this disease.

With the above limitations I still have records of one hundred and forty-six cases. This seems like a large number, but from recent reports it compares with what is occurring in all the larger centers of population in the north and central portions of the United States.

I have made a simple analysis of these cases. Eight per cent occurred during the first year of life, thirty per cent during the second, twenty-two per cent during the third, two per cent during the fourth, and ten per cent during the fifth year. Seventy per cent occurred during the first four years, figures approximating those to be found in other reports of this disease.

The sex variation was of no importance. There were a few more girls than boys on my records.

Interesting from an etiologic point of view is the seasonal increase of infantile paralysis during the hot and dry months. My cases were no exception to the rule. January to May, eleven per cent; June, ten per cent; July, twenty-four per cent; August, thirty-four per cent; September, thirteen per cent; October, five per cent.

I also attempted to analyze the cases according to the clinical manifestations. For this purpose I have employed the eight divisions Wickman of Sweden used in his monograph. The large majority, sixty per cent, were of the ordinary spinal form with paralysis in one or more of the extremities; three per cent, all adults, were of the ascending type of paralysis, resembling Landry's paralysis; eight per cent showed involvement of the cranial nerves, the bulbar type. There were no cases that could be classed as cerebral or of the toxic type; twenty per cent had pronounced meningeal symptoms; eight per cent, nerve involvement, the neurotic type. I have included in the abortive division eleven per cent; most of these were of the mild spinal form with but slight paralysis.

The general impression gained from the above analysis is that the type of this disease in Detroit has been mild. There were no fatal cases reported to the Board of Health, but probably there were such cases included under meningitis or acute intoxication.

There was nothing determined of any value as regards contagion. In four instances in which there were two cases in the same family, the second child in each instance had the disease in milder form than the first. In contrast to this I have a record of a case where the father cared for a daughter who had a fairly severe attack; the father, thirty-eight years old, contracted the disease and died. His attack resembled Landry's paralysis. Another record of interest in connection with the subject of contagion is the instance of twin babies six months old, both nursing at the same breast, one contracted the disease, and the other did not. They were both nursing most of the time.

Early diagnosis is of considerable importance. My observations lead

me to believe that with closer observation and increased watchfulness we will be able to make a tentative diagnosis before the appearance of the paralysis. All such cases should have urotropin.

I desire to make a few remarks concerning the cases in Hillsdale county. I had an opportunity to investigate some of them about Camden and my impression was that the outbreak there resembled the conditions in Detroit, although I believe there were in the county many more severe cases.

There is not much of value as yet in a therapeutic way. Still the point of most interest to us is to be able to make an early diagnosis, and so be prepared for what may develop along this line.

DOCTOR JOSHUA G. R. MANWARING (Flint): Two years ago I had an opportunity to carefully observe an epidemic of anterior poliomyelitis which was reported in the *Journal of the Michigan State Medical Society* shortly afterwards. Being one of the early ones reported in the state it was of great interest to me. One epidemic had been reported already in the western part of the state, but not in detail. There was not a large number of cases in the epidemic that I am describing. We had all the types and varieties that have been described, three bulbar cases, three acute ascending cases. As Doctor Rowland has stated, they occurred with equal frequency among males and females. The ages of the patients were from two to thirty-two. The average age in thirty cases was ten, while the mortality ranged slightly higher than is given for most of the epidemics. It was higher in the Scandinavian epidemics, but at times it ranges lower. The death rate was 16.6 per cent. All the children under ten years of age, eighteen in all, recovered. There were eight patients between ten and twenty years of age and two of these died. There were four patients over twenty and of these three died—seventy-five per cent. In a careful study of epidemics this is the usual history, the older the patients the higher the mortality.

The prodromal symptoms were as usually described, different apparently from what we used to call the sporadic type. Most of them had sensory symptoms. A few of them apparently had no symptoms which would lead the physician to believe that they were sick. In the case of one child between the ages of two and three, I was called by a physician to give an anesthetic for circumcision. The mother told us he could not walk, would fall and could barely stand. Examination showed that the trouble was not due to the penis but to a paralysis. Another case was reported as very severe and there were very severe prodromal symptoms. The patient was twenty-six years of age, a clerk in a store. I saw him three times, not suspecting what he had at all, with a temperature running as high as 104, and intense pains all over the body and limbs, and much headache. He had some irritation of the bladder during the night and later could not urinate. The next morning he had paralysis so that he could not get out of bed. I then found that he was paralyzed completely excepting some of the finer muscles below the waist. He died at about 10 o'clock that night, twelve hours after the onset of the paralysis. By artificial respiration we kept him alive four or five hours until his sister came

from a neighboring town. I learned at that time more about artificial respiration than I ever knew before. When the arms are paralyzed and also the chest muscles, the ordinary methods are not sufficient. We had someone hold the head down and picked the body up by the arms. This filled the lungs with air and then the weight of the body falling would expel it. After a few minutes he would become cyanotic, then he would motion us to go on again. He suffocated about midnight. Three of these patients followed that course, all of them in persons over twenty years of age.

One physician located at a four corners, had twelve cases, all in that immediate vicinity. They were of a mild type and he lost but one. However, the proportion of patients to the population was greater than I know of elsewhere. This past summer I found eight cases, four of them in a school house in a village near Flint, two of the spinal type, one of the bulbar type, and one of the type that I believe to be cerebral. Of course there is some question as to whether this was poliomyelitis. It occurred at the same time as these other cases in a child who was semiconscious for about ten days, light reflexes lost in both eyes and even in the conjunctiva. He had early in the course of the attack an increase in temperature, and complained of pain in the head and general body pains. The lower limbs, legs and thighs were partially paralyzed or very weak but not enough to give positive paralysis. The child was three and a half years of age and made a complete recovery. I could not account for it, except that it was one of those cases of the cerebral type of infection often described in epidemics.

In the city of Flint, the cases with the one exception have all been on the outskirts. This was the young man who died. This summer we had four in the outer portions of the city. They were of the spinal type and none was fatal. All of the cases occurred in July, August, and September, with the exception of a new case reported to the Board of Health about four or five days ago and we have not had time to look it up. All the other cases we have had were in the summer months.

DOCTOR THEOPHIL KLINGMANN: Epidemic poliomyelitis, like epidemic meningitis, is invariably the product of a specific microorganism. However, we must admit that identical clinical pictures, the result of the same anatomic changes, are produced by a variety of pathologic conditions. As an illustration of this statement I may cite a number of cases with the following histories: A patient fourteen years of age, complained of weakness in the right lower extremity with marked emaciation of the right buttock, thigh and leg. In September, 1909, he became languid and mentally dull and was obliged to give up his school work. About two weeks later he developed "muscular twitching" of the face, choreiform movements of the upper extremities, and occasionally of the right lower extremity, so that he found it at times difficult to walk. There was a weakness in the right lower extremity and the gait was not disturbed during the absence of the choreiform movements. During this period he had indefinite pains in the shoulder-joints, also in the arms and lower extremities. Three weeks after the onset of these symptoms he

was suddenly taken with an attack of angina, nausea and vomiting, elevation of temperature (102° Fahrenheit), severe pain in the lower part of the back and lower extremities, swelling and hyperemia of the right ankle and left knee-joint and, on the second day, complete paralysis of the right lower extremity and considerable weakness in the left. There was no disturbance of tactile or pain sense at any time during this illness. The patellar and Achilles tendon reflexes were absent. At the end of the second week of this acute illness there was some atrophy of the right leg and a change in the electric reactions (reaction of degeneration in the right gastrocnemius). While the left lower extremity improved, the right became more emaciated. At the end of six weeks the patient was able to be about, the left lower extremity being normal, the right leg paralyzed. During the acute illness and for weeks after, the choreiform movements continued in the upper extremities but ceased in the lower. There was considerable fixation in the right ankle and left knee-joint, but it resulted in complete recovery. A systolic murmur was heard most distinctly in the third intercostal space, just to the left of the sternum. It was first noticed during the second week of the illness.

Examination June 5, 1910: The patient appears somewhat pale. There is twitching of the face muscles, most marked on the right side, incessant choreiform movements of both arms and occasionally of the left thigh. The eyes are normal and there is no facial palsy, no tremor nor involuntary movements of the tongue and no speech defect. There is no disturbance of general sensibility. Tactile and pain sense are normal everywhere, so is the localizing sense and muscle sense. The thorax is symmetrically developed, there being no atrophy of the pectorals, and the lungs and respiration free from any disturbance. The apex beat is to be seen in the fifth intercostal space, three centimeters to the inner side of the left mammary line. The heart's action is regular, a blowing sound is heard in the third intercostal space, one centimeter to the left of the sternum occurring with the first heart sound. The pulse is seventy per minute. The spine is straight and there is no spinal tenderness. The musculature of the back is symmetrically developed and the tonicity is equal on both sides. The reflexes of the trunk are all active and normal. The musculature of the arms is small but equal on both sides. The muscular tone is normal. There are involuntary incoordinate movements of both arms which are more or less constant. The muscular strength is about equal in both arms but somewhat diminished. The biceps and triceps jerks are equal and prompt. The right buttock is much smaller than the left. The glutei muscles are greatly atrophied, the electric formula changed (reaction of degeneration). The right lower extremity is much smaller than the left, the greatest atrophy being in the leg. The gastrocnemius is markedly reduced in volume and gives the electric reaction of degeneration. The peronei and anterior tibial muscles are atrophied. The electric formula is not changed in the anterior group. Anterior flexion of the right foot is very weak. The patient is unable to stand on the toes of the right foot. The patellar tendon reflex is diminished; the Achilles reflex is lost; the plantar reflex is normal on

both sides. The right leg feels cold to the touch. The left lower extremity is normal.

Another interesting case is that of a young woman, aged eighteen, who developed acute anterior poliomyelitis after an acute gonorrheal infection. The family history in this case was entirely negative.

As a child she was in good health; she had the ordinary diseases of childhood and always made a good recovery. Menstruation occurred at the age of thirteen, regular and without pain. A year ago she contracted gonorrhea. On the fourth or fifth day she noticed a vaginal discharge and some irritation when voiding urine. She was not treated at this time. On the tenth day she was suddenly taken with a severe chill, nausea and vomiting, headache, pain in the dorsal region and in the lower extremities. Micturition was very painful and frequent with vesical tenesmus and profuse, purulent, urethral discharge. Microscopic examination revealed the gonococcus. The temperature reached 103° Fahrenheit the first day. This elevation of temperature continued for several days. On the third day she noticed some difficulty in moving the lower extremities and the day following the right lower extremity was completely paralyzed and the left very weak. She was confined to bed two weeks. At the end of this time she could not stand or walk. There followed a gradual improvement and she regained muscular strength in the left lower extremity, more slowly in the right. The right lower extremity gradually diminished in size, especially the leg. She had no numbness and could always feel light touch and pin-prick equally well in both lower extremities, but the right leg has been colder to touch than the left since her illness. She thinks that the atrophy has not increased for several months.

Examination of the patient gave the following result: She appears healthy and says she is well with the exception of the weakness in the right lower extremity. The right lower extremity is much smaller than the left. This is most noticeable in the leg. The right leg feels colder to touch than the left. She feels light touch and pin-point equally well all over. Localizing sense is good in both lower extremities, and sense of position and motion is not disturbed. Thermal sense is not disturbed. Muscular strength is much diminished in flexion and extension of the right thigh and leg. She cannot extend the right foot and flexion is difficult. The muscles of the right leg are soft and flabby and markedly atrophied, especially the posterior leg group. There is a difference in the circumference of one and one-half inches at corresponding points of the two legs. The electric irritability is diminished in all of the muscles of the right leg and there is a reaction of degeneration in the posterior group. The right patellar reflex is depressed, the right Achilles lost. The normal plantar reflex is present on both sides; otherwise the examination is negative except the urine. In the sediment of the urine are found many red blood cells, leukocytes and numerous epithelial cells. There is considerable vaginal discharge in which the gonococcus is to be found.

Another interesting group of cases were five, varying from the ages of two to twelve, observed in one family. The first patient was taken

suddenly with the usual initial symptoms, the paralysis of both lower extremities followed on the third day; the second and third patients developed the disease three or four days after the onset of the illness in the first case. The initial symptoms were the same as in the first case. In all of the patients the lower extremities were involved; four made complete recoveries, while the first is permanently disabled. Two cases were very mild and developed ten days after the first. The right arm and left leg were very weak in the one patient. The other patient, after slight initial symptoms, was unable to stand or walk for a few days. The patellar tendon reflexes were absent, there was no apparent atrophy and recovery was complete in three weeks. All of the patients of this group complained of sore throat during the initial stage of the disease.

Two other cases developed in another part of the city. The disease was severe in both cases with permanent disabilities of one lower extremity in both cases.

In reviewing the results of the more recent investigations, particularly the extensive work of Flexner, one must come to the conclusion that anterior poliomyelitis is not a single clinical and pathologic entity, but that the symptom-complex is caused by definite anatomic lesions of the spinal cord and brain, the effects of several independent causes, the most important of which is the specific microorganism causing epidemic poliomyelitis. Undoubtedly all other varieties are infectious but not specific.

DOCTOR CARL D. CAMP: With all due respect to Doctor Flexner and his researches, it has never been demonstrated to me that this disease is contagious in any way. It seems to me that the only thing that has been shown is that a spinal cord containing a certain virus or poison, when injected directly into a monkey's brain will cause some localized inflammatory condition in the anterior horn of the spinal cord. The disease may be contagious, and still more probable it may be infectious, but I am inclined to think that we should still say we do not know. Last summer there was an epidemic in the Lehigh Valley and Doctor Charles K. Mills at that time put forward the theory that the cause was the bite of some insect. I do not know that he was the first to advance the theory, but there are many reasons to think that this theory may be correct. Seasonal variations and distribution of the disease would indicate some air-borne infection or the bite of an insect. For instance, this epidemic of which I speak was limited to the Lehigh Valley, and Doctor Manwaring's cases were limited to the outlying districts of Flint. Personally I have always been in favor of the older theory that it was due to some virus or toxin which might be inorganic and derived from changes of foods. We know that polioencephalitis is most frequently caused by meat and fish poisons, and there is no difference between the two except that of location of the pathologic process.

Since we do not know the process of transmission and its contagiousness has not been definitely established, I would regard an attempt to quarantine patients suffering from this disease as ridiculous. I have not had much experience with epidemics, but we had one case in the

children's ward. The child stayed there for several months and no other cases developed in the ward, and yet the paralysis was very typical. Doctor Kiefer has suggested that it would be wise to disseminate information as to the methods of early diagnosis. I should be glad myself to know of a reliable method of diagnosis before the paralysis develops; after it develops there is not much difficulty.

The lumbar puncture and the findings in the cerebrospinal fluid are not pathognomonic. There is probably some increase in lymphocytes, but the same thing occurs in tuberculous meningitis. It seems to me it is very difficult to make an early diagnosis, and therefore our efforts should be directed towards establishing means of early diagnosis. Further research along this line is very necessary.

In regard to the methods of treatment of acute cases, I have had so little experience that I cannot speak from it, but the administration of urotropin seems to be of doubtful value, not but that it may be given for the good effect it might have, in accordance with the observations of Crowley and Crowe. I have tried to prove its germicidal value by the method of testing for formaldehyde in the spinal fluid. Doctor Gomberg, of the Chemical Laboratory in the University, who made some tests, could not find it as such and suggested that urotropin was taken up by the spinal fluid without change and is not broken down.

Mechanical treatment is very important in the resulting paralysis. As a rule I have been opposed to braces, because the average brace is not made correctly and is not applied with intelligence. This remark does not apply to Doctor Kidner's braces, which were very light and mechanically correct. However, in most of the cases they are too heavy and favor development of ankylosis and atrophy. I heartily agree with the treatment outlined for contractures. In fact, we have been using the rubber bandage and are able to reduce contracture of the knee in five months. We leave the rubber bandage on about a half hour and then take it off. In many cases we have to do a tenotomy, for contracture of the tendons will reoccur. The use of the elastic is not difficult, but I know that a great many physicians do not understand its use and regard it as difficult. Personally it seems a simple matter to familiarize yourself with the technic, and in my hands it has been of unquestionable benefit. In the case shown this evening a considerable amount of movement has come after two weeks of treatment.

DOCTOR THOMAS B. COOLEY (Detroit): I am sorry not to have time to argue the question of the infectiousness of the disease with Doctor Camp, for I feel that there is more in the experiments of Flexner and others than he is willing to admit. As to the question of early diagnosis: There is at present nothing at all definite except the character of the cerebrospinal fluid, and I think Doctor Kiefer's campaign of education among the physicians will have to begin with lumbar puncture. I have been astonished to see how few practitioners ever think of this procedure. It is the only means we have now of distinguishing with reasonable accuracy between poliomyelitis and the different forms of meningitis. As Doctor Camp has pointed out, there is sometimes very little to differen-

tiate it, even in the fluid. I have seen three cases of meningococcus infection where there was nothing in the fluid, either gross or microscopic, to differentiate from tubercular meningitis or poliomyelitis. I think a culture should be taken from the fluid every time a puncture is made. In this way we should detect a certain number of cases of cerebrospinal meningitis which otherwise would pass as poliomyelitis, and vice versa. Flexner feels positive about the early evidence of poliomyelitis in the fluid. The characteristic features, however, unfortunately begin to disappear about the time of the paralysis. Of course one does not feel like performing lumbar puncture on every sick child, but in the face of an epidemic it might be of the highest importance. As to prophylaxis I agree in general with Doctor Kiefer.

It seems to me that if the virus is so easily destroyed as Flexner states, it might be well to treat the nose and pharynx of infected individuals with mild antiseptics. The virus is present there for some time; it disappears early from the cord. Whether it will pay to treat the nose and pharynx of the healthy individual as a prophylactic measure I am not so sure.

DOCTOR CHARLES W. HITCHCOCK (Detroit): As I have had very little clinical experience with anterior poliomyelitis, it seemed to me that I might best serve the purposes of this discussion if I called attention to Lucas and Osgood's experimental work along this line. While no doubt this work is familiar to you all, it is so good as to bear a critical review. These experimenters inoculated monkeys with the virus of anterior poliomyelitis and then took the nasal mucosa and ground it up with sterilized salt solution and put it through a Berkfeld filter. Of this filtrate from a monkey inoculated June 1 and who died November 8, they injected two cubic centimeters into the cerebrum of another monkey. This monkey recovered.

Into another monkey they injected five cubic centimeters intracerebrally of an emulsion of glycerine and salt and he remained well. They injected still another monkey with seven cubic centimeters of saline filtrate from the nose and pharyngeal membrane by the intracerebral route on November 9 and he was paralyzed in four days, while the one that received the two cubic centimeters remained well. A filtrate was made from the brain and cord of this latter monkey and another monkey was inoculated with ten cubic centimeters of this filtrate. He was paralyzed in seven days and killed by ether after twenty-three days. A filtrate was made from the brain and cord of this monkey and injected into another on December 3 and he was paralyzed in five days.

These experiments show the long persistence in the nose and pharyngeal membrane of the specific virus to which this disease is due. Even after six weeks of quarantine to prevent possible infection there is a possibility this disease may be spread. One monkey still had the virus in its nose and pharyngeal mucosa and was capable of carrying the disease. In other experiments the monkeys were closely associated and used the same dishes for eating and drinking, still there was no communication of the disease from monkey to monkey. This shows that the disease may be

produced by inoculation from the monkey, yet the closest association may not communicate it.

What Doctor Rowland said about the Landry type of the disease brought to my mind a case seen in consultation last July, a soldier at Fort Wayne, who after a mild infection developed a slight chill, followed by some temperature. He then had symptoms of beginning paralysis of the toes and foot, later extending up and involving the diaphragm to a limited extent and there stopping, the paralysis receding in the reverse order. We made a diagnosis of Landry's paralysis. There seems to be a close relation between these two diseases. This man is making a good recovery.

DOCTOR GUY L. CONNOR (Detroit): The first epidemic of acute poliomyelitis occurred in this country in Louisiana in 1841 and was reported in 1843. We Americans can claim credit for the discovery of this disease in its epidemic form.

I was glad to hear Doctor Klingmann close with the statement that this disease might be divided into two classes, one caused by a specific virus and the other by various causes. I quite agree with him in his position. This will perhaps explain some of the differences in the mortality charts.

In my own personal experience in Detroit, I saw during the year 1910, fifty-eight cases of acute poliomyelitis. These I saw in private practice, consultation, and in my service at the Children's Free Hospital. None of these patients died and none completely recovered. The youngest child I saw was eighteen months of age and the oldest five years. The largest number occurred in July and August. Of my series there were only three cases difficult to diagnose because of the early meningeal symptoms.

There is considerable difficulty encountered when one tries to use the electric current on very young children. It can be done but it takes patience and time. I have seen three cases that Doctor Kidner has cared for and I must say that the results are most striking. I shall follow his work with a great deal of interest.

The most interesting patient I saw during the year was one who had two attacks. The first involved the right leg and left arm. Two months later there was a second attack which involved the muscles of the left abdomen. The abdominal paralysis cleared up pretty well, leaving a marked involvement of arm and leg. Doctor Kidner is now working on this patient.

In closing, I wish to disagree with Doctor Rowland. I do not think the physicians of Detroit are as ignorant of this disease as he thinks. In my opinion, the most of them are quite as able to make a diagnosis of this disease as either he or I.

DOCTOR ALBION W. HEWLETT: My personal experience with anterior poliomyelitis is very slight, but it seems to me that evidence is rapidly accumulating in favor of the infection theory. This, of course, is not an old theory, but a recent work and it is now much stronger than ever before, and as is the case with most infectious diseases we have general questions pressing for solution. There is the standpoint of the public health service. One of these questions has been touched upon and that is the

resistance of the virus, the length of time that it remains virulent. It would seem from analogy with other infectious diseases, that it can be carried for a long time. There is evidence that this is probably true with this disease. Another question that is important from the standpoint of public health is that of the extremely mild cases. It has been noticed by those who have studied epidemics that in the neighborhood there are often indefinite sicknesses that begin like typical cases but do not develop paralysis. Here again from analogy it seems probable that some of these are mild cases, and certainly in trying to handle an epidemic these are the dangerous persons because they are difficult to isolate, and you can never tell when they will spread the disease. As to the importance of contagion we are quite ignorant of the methods by which it is carried. Certainly the number of cases in a single family has not been very striking. Occasionally there is a large part of the same family affected, but it is hard to say that the disease has been directly communicated. It is quite possible that the disease comes in some other way than by direct contagion.

DOCTOR DAVID M. COWIE: I have seen but one case of this disease in the active stage, the case spoken of by Doctor Camp, which developed in my ward in a boy who had been in the hospital a number of weeks previous to the onset. Although this case had been in fairly close contact with other children and not screened until after the onset of the paralysis, no further cases developed. This would lead one to think that the disease is, at least, not highly contagious.

We have no means of making a diagnosis of this disease in the early stages excepting perhaps by means of lumbar puncture, when a fairly widespread epidemic is present. If we are to depend upon this method, which, by the way is not absolute, we shall have to perform lumbar puncture on all children developing gastrointestinal symptoms or fever or any other suspicious group of symptoms occurring during a time when poliomyelitis is prevalent.

So in almost every case the damage to the cord is done and in a sense the process is completed before our diagnosis can possibly be made. We have experimental evidence that hexamethylenetetraamin (urotropin) will prevent the disease from developing if given early, or if given before and after inoculation has been performed. It seems to me that in view of these facts and the work that has been done it is entirely rational for us to give this chemical compound to all children in proper and guarded doses during an epidemic.

Several weeks ago Doctor Mark Richardson, of the Massachusetts State Board of Health, wrote and asked me to give him all the information I could in regard to the occurrence of this disease in Michigan. No definite records being kept by the Michigan State Board of Health or in the office of vital statistics, I wrote to a number of prominent physicians throughout the state for reports of cases. I have one or two reports which are of interest and which I should like to give to you tonight. My canvass was by no means extensive. Most of those to whom I wrote had seen no cases. These reports, together with those recorded tonight, serve

only to show that the disease has been fairly widespread throughout the State during the past few years.

Doctor Clara M. Davis, of Lansing, gives the following report from a canvass of forty-one physicians practicing in that city. She collects thirteen cases, covering a period of forty years, as follows: 1905, two cases; 1907, one case; 1908, one case; 1909, three cases; 1910, six cases.

Doctor J. D. Bruce, of Saginaw, sends me records of five cases in his practice, all occurring during the months of August, September, and October, 1909 and 1910. Doctor Bruce is a very careful observer and states that these are the only cases he has seen in fifteen years. Other cases have occurred in Saginaw.

Doctor Thomas W. Paton, of Ypsilanti, during the year 1910 has had three cases.

Doctor William Lyon, of Grass Lake, reports one fatal case in a man of twenty-two years occurring in August, 1910.

Doctor Neal A. Gates, of Ann Arbor, has given me records of three cases occurring in his practice during the summer of 1910, all in adults.

Some physicians seem to be of the opinion that treatment is of no avail in this disease; that, depending upon the extent of damage done, patients get better or worse regardless of treatment. My belief is that we should treat this disease from the infectious standpoint and push the remedy from the time of the very first symptoms of paralysis with the hope that further involvement of the cord will be checked. At the proper time mechanical treatment, et cetera, should be carefully carried out.

ORIGINAL ABSTRACTS.

MEDICINE.

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THE MICROSCOPIC EXAMINATION OF THE BLOOD FOR BACTERIA.

FRIED and SOPHIAN (*American Journal of the Medical Sciences*, 1911, Volume CXLII, Number LXXXVIII), have made direct examinations of the bloods of patients at the Mount Sinai Hospital, New York, in order to determine in what proportion of cases bacteria can be seen microscopically when the blood cultures are positive. Two hundred and fifty cases were studied. One to two cubic centimeters of freshly drawn blood were poured into twenty cubic centimeters of sterile one per cent aqueous solution of sodium citrate to prevent coagulation. This was centrifugalized for at least half an hour and a few drops of the sediment smeared on clean slides. The preparations were then fixed by heat, and the blood laked with distilled water followed by a one per cent solution of acetic

acid. The Gram stain was found most satisfactory. Scrupulous cleanliness was used throughout, all fluids being passed through Berkefeld filters. When the blood cultures showed Gram positive cocci, similar cocci were found on smears in thirty-two of thirty-three cases. In twelve cases Gram positive organisms were found in smears, but not on culture. The clinical diagnoses of these cases were such as might be accompanied with bacteria in the blood. In one hundred and twenty cases, both cultures and smears were negative. The method is of no value when Gram negative organisms, such as typhoid bacillus, are present in cultures, for the reason that on smears it is not easy to distinguish these organisms from rods present in which no bacteriemia was present and which were possibly hemokonia

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SOME POINTS IN SURGICAL PRACTICE.

VOLUME XII, Number VI, of *Surgery, Gynecology and Obstetrics* contains a number of new and interesting surgical points. Doctor Samuel C. Plummer, of Chicago, describes an easy method for testing the viability of strangulated intestine. He was operating for inguinal hernia and found a loop of small intestine about three inches long, very much thickened, dark and edematous, the adjacent mesentery presenting the same appearance. The applications of hot compresses, wet with normal salt solution for fifteen minutes only made the parts more edematous and darker than before. Realizing that traction interfered with the circulation the affected parts were temporarily reduced and at the same time one of the adjacent loops of intestine was delivered, to easily mark the place and readily withdraw the congested portion, which was done after three minutes. By this time the swelling was diminished, the color was normal, and the furrows at the constricted points could scarcely be seen. A final reduction was then made and a good recovery followed. This method reduces tension and pressure on the vessels. It favors return of circulation by placing the part in its normal location. In certain cases, gangrene might be so far advanced that this method would be dangerous. Again, fluid in the sac might show signs of infection, but in many cases there could be no possible objection to this procedure.

Robert T. Morris, M. D., of New York City, gives a clinical report on the composition and use of an artificial synovial fluid. In trying to find a fluid presenting the physical characteristics of normal synovial fluid, he mixed together one part boroglycerid, three parts glycerin and four

parts of water. Nine-tenths of one per cent of salt was added to render it more agreeable to the tissues. This was mixed and sterilized before using. The fluid is introduced directly into the joint through a large sterilized needle in amounts according to the size of the joint; a single drop will be sufficient for a finger-joint, while a knee will require more than an ounce. Rarely more than one injection is needed. It is employed where adhesions have followed traumatic synovitis, infections, acute inflammatory processes, and old creaky joints of indefinite pathology.

Martin B. Tinker, M. D., and Howard L. Prince, M. D., of Ithaca, New York, contribute a short paper on common fallacies regarding skin disinfections with special reference to the iodine methods. The skin of persons who are reasonably clean is not apt to be badly infected. Wounds that are contaminated are by bacteria that under ordinary conditions are of low grade virulence. Conditions favorable to bacterial development are not present under these conditions. A mistake is made in accepting the aseptic value of drugs without testing them under the conditions in which they are used in the operating room.

Laboratory tests do not apply to all forms of bacteria, hence the method must include all spore-forming bacteria and show that they are destroyed. Very few antiseptics are to be trusted even when applied to the skin surface and around the walls for five minutes. Iodine, as applied by European surgeons, is not certain to kill all spore-forming bacteria.

A number of tests were made by applying iodine to the skin according to the usual methods. Sterile threads were then drawn across the surface and dropped in bouillon. Thirty minutes after a second application was made and the sterile thread experiment repeated. All gave a prompt and positive growth.

In a second series the skin of the arm and fingers was impregnated with bouillon cultures of *Bacillus subtilis*. The surface was protected by sterile dressing and free from water for twenty-four hours, a covering of tincture of iodine was applied and the sterile dressing renewed. In one and one-half hours a second application of iodine was made and the sterile dressing replaced. Three hours later scrapings with a sterile scalpel were put in bouillon and every specimen gave a positive growth.

While these experiments are not conclusive the writers are convinced that further investigation is necessary to discover a short cut in skin disinfection. Iodine may have an additional value as a counterirritant in producing wound healing.

The inhibiting of killing power varies much in various antiseptics. What is needed is a combination of antiseptics that will kill all forms of bacteria. So far as their laboratory experiments go, Harrington's solution is the best known for this purpose. When applied to the skin by friction for two and one-half minutes and sponged off with alcohol the results have been satisfactory. The same preparation may be used for the hands if the skin will stand it, but the old method of scrubbing and immersing in bichlorid solution with the final cleansing in alcohol still proves to be efficient by laboratory tests.

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GYNECOLOGY.

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SARCOMA OF THE VAGINA.

JOSEPH MCFARLAND (*The American Journal of the Medical Sciences*, Volume CXLI, page 570) gives a statistical study of one hundred and two cases of sarcoma of the vagina which comprises one hundred and one cases collected from the literature and one new case of the "grape-like sarcoma" of the vagina in an infant.

Sarcoma of the vagina is found at all ages. The sarcoma botryoides vaginæ or grape-like sarcoma occurs most frequently in infants (there being thirty-two such cases on record) and is well characterized clinically. It assumes a peculiar polypoid or papillary form with numbers of cysts and is very malignant. The first symptoms are appearance of the tumor in the introitus and bloody discharge. The clinical diagnosis is usually vaginal polyp, the true nature of the growth not being recognized until rapid recurrence follows its excision or divulsion. No metastases have been reported, but the tumor extends locally by steadily infiltrating the pelvis and bladder and finally causes death by exhaustion or uremic poisoning.

Metastasis is also rare in vaginal sarcoma of adults, in whom the clinical course is similar to that just described.

The cases are tabulated according to chronologic distribution, anatomic origin, geographic distribution, mortality results, age incidence and histologic type. A full bibliography completes this valuable contribution to the subject.

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OBSTETRICS.

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HEBOSTEOTOMY.

HAABRLEICHER (*The Journal of Obstetrics and Gynecology of the British Empire*, Volume XIX, Number III) publishes notes on sixteen unselected cases of hebosteotomy observed in the clinics of Berlin, Munich, and Königsberg. From his study of the cases he concludes that the indications are rather indefinite. As a rule the previous obstetric history and the mother's urgent wish for a living child should carry a great deal of weight. To avoid disastrous risks hebosteotomy must be performed with a very exact technic, relatively early in labor, on carefully selected cases, uncomplicated by any previous obstetric interference. The benefit to be expected in a subsequent delivery, is, to say the least, problematic. The

claim that later deliveries would reap the advantage of the enlarged pelvis has not been borne out by experience. Even after a strikingly successful operation and uneventful immediate recovery, the condition of the patient is not always enviable, especially in those compelled to return to their duties after a short convalescence. Thrombosis, prolapse, and sacral pain drag on indefinitely although the gait is relatively seldom disturbed.

Since eighty per cent of deliveries with contracted pelves are spontaneous if left to nature, and if hebstectomy is not performed till the child is in danger, the goal of the operation, namely, a living child, is uncertain, and the mother incurs a great risk. To insure a living child the operation should be performed early in labor. As the benefit for future labors is uncertain, it has no advantages over Cesarean section. Cesarean section in equally skilled hands has never shown such a list of disasters. To avoid these disasters the cases have to be so carefully selected that the field for hebstectomy must remain a narrow one, namely, multipara, with a conjugate of not less than seven and five-tenths centimeters in a flat, or eight centimeters in a generally contracted pelvis. Even in these cases Cesarean section will be considered by many to hold the field.

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DERMATOLOGY.

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THE INDIA INK METHOD FOR SPIROCHETES.

VOLUME LV, Number XXII, of the *Journal of the American Medical Association*, contains a timely article by Joseph H. Barach, entitled a "Warning Against the India Ink Method for the Spirocheta Pallida."

After calling attention to the changes in the methods of treatment in the past few years, all dependent upon the diagnosis being made upon the presence of spirochetes, he warns against insufficient or uncertain methods being used in the search for them. Various staining methods are in vogue and vary in their popularity, with the ease or difficulty of carrying them out. The India ink method became rapidly popular on account of the simplicity of the technic.

Doctor Barach discovered that the detection of spirochetes in large numbers from specific lesions was easy. He then found similar bodies in lesions where the diagnosis was in doubt. He then examined the ink alone and found the same bodies. These are wavy fibers which were exhibited to a number of laboratory workers. All of these men agreed that the noncritical or inexperienced worker might easily mistake these wavy fibers for spirochetes.

The ink first used was Higgin's India ink, but experiments were later carried out with other inks, all of which gave forms easily confused with spirochetes, cocci, streptococci, and bacilli.

A culture of Higgin's ink after seventy-two hours was negative.

J. F. B.

MEDICAL NEWS.

THE PASSING OF A DISTINGUISHED PHYSICIAN.

THE American medical profession certainly suffered a great loss by the death of Doctor Aloysius O. J. Kelly, which occurred in Philadelphia some time ago. While only forty-one at the time of his passing, deceased



ALOYSIUS O. J. KELLY, M. D.

(Courtesy of American Medicine.)

had rendered valuable service to medicine in various capacities. He was born in the City of Brotherly Love on June 13, 1870, and concluded his earthly career on February 23, 1911. At the age of twenty-one he

graduated from the medical department of the University of Pennsylvania, and after serving awhile as interne at Saint Agnes' Hospital, he pursued further study at London, Dublin, and Vienna. On his return to Philadelphia he became successively physician to Saint Agnes' Hospital; pathologist to the German Hospital; instructor in physical diagnosis in the University of Pennsylvania, and later instructor in clinical medicine, while still later came the promotion to assistant professor of clinical medicine in the same institution. The Woman's Medical College of Pennsylvania elected him to the clinical professorship of pathology in 1897. He also held the chair of theory and practice of medicine in the University of Vermont. Doctor Kelly was not only a physician and teacher but earned the title of literateur as well, having contributed much to the literary side of medicine. He was author of a "Practice of Medicine;" coeditor with Doctor Musser of a "System of Therapeutics;" editor for a number of years of "International Clinics;" and since 1906 occupied the tripod of the *American Journal of the Medical Sciences*.

RECENT PUBLICATIONS.

REVIEWS.

DISEASES OF THE BONES AND JOINTS.*

THESE clinical studies are of absorbing interest and merit careful reading and thoughtful consideration. A chapter of more than thirty pages is required for the description of methods of physical examination in joint disease and is one of the noteworthy features of the book. Numerous clear, carefully described figures and illustrative cases contribute greatly to the effectiveness of the work. Special chapters are devoted to the operative treatment of joint tuberculosis, to the operative technic and mechanical treatment of tuberculous and chronic nontuberculous joint disease and to the use of plaster of Paris in orthopedic surgery. N. N. W.

*By Joel E. Goldthwaite, Charles F. Painter, and Robert B. Osgood. Cloth; 683 pages, with 287 figures. Published by W. M. Leonard, Boston.

SURGICAL ANATOMY.*

THE title of this work is a faithful index of its character and value. As a practical anatomist and surgeon, the author fully appreciates the importance of the correlation of anatomic facts and has brought together in this book a digest of available data in a way both acceptable and calculated to develop the "anatomic mind." It is by no means a textbook of anatomy but rather a commentary and withal so comprehensive that no portion of the human body is neglected. It is confidently recommended to the thorough anatomist and surgeon as an efficient aid. F. B. W.

*By William Francis Campbell, M. D., Professor of Anatomy at the Long Island College Hospital. Second edition revised. Octavo of 675 pages, with 319 original illustrations. Cloth, \$5.00 net; half morocco, \$6.50 net. Philadelphia and London: W. B. Saunders Company, 1911.

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ORIGINAL ARTICLES.

MEMOIRS.

CAMPHORIC ACID AND ITS RELATION TO THE NIGHT SWEATS OF TUBERCULOSIS.*

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THE use of camphoric acid in the treatment of the night sweats of tuberculosis dates back to the researches of Fürbringer and Wittkowski several decades ago. Immediately following their announcement that it possessed antihydrotic properties many clinicians investigated it and found it to be one of the most useful drugs in combating this symptom.

Chemically camphoric acid is the oxide of camphor and by some authorities is said to have an action similar to that of its parent substance. By others it is believed to further possess a paralyzing action on the nerve terminations in the sweat glands. Adherents of the former view support the idea that the sweats of phthisis are asphyxial in origin being due to a depression of the respiratory center. Therefore any drug which stimulates this center will be effective in stopping the sweats.

The more recent clinical and experimental work on this drug would seem to throw considerable doubt upon its supposed physiologic action.

Experimentally the work has been meager. The first work of this kind was done by Wagener who concluded that the action was similar to that of camphor. Stockman found in addition that it paralyzed the nerves to the sweat glands. Dreesman duplicated the work of Stockman and came to opposite conclusions.

The experimental researches of Fugitani and Tyrode which were carried out within the last few years were more extensive than any previously reported. Fugitani, using the sodium salt, produced a gradual depression in frogs, and in mammals an increase in respiration and a rise in blood

*Read before the Clinical Society of the University of Michigan, April 5, 1911.

pressure. He was unable to stop the sweating induced in cats by electric stimulation of the sciatics. From this he concluded that the nerve ends in the sweat glands were unaffected.

Tyrode, working independently, reported his results at about the same time and concluded that the drug had no well marked physiologic properties other than those possessed by any salt whose ions exerted no specific effect.

In my own work the sodium salt of camphoric acid (sodium camphorate) was used throughout, being made by neutralizing the acid with sodium hydroxid or sodium carbonate. Three specimens were used, all of which were tested as to purity, and met the requirements of the "United States Pharmacopeia," eighth revision.

In the frog with doses up to .010 gram, per gram of body weight, no especial symptoms were produced other than a noticeable increase in respiration. With doses as large as .025 gram, per gram of body weight, the animals would sink into a state of general depression very quickly and in from five to forty minutes muscular twitchings would appear. In some cases tonic convulsions and an increase in reflexes were observed. The death of the animal usually followed in from one to several hours. An investigation of the depression showed it to be central. The twitchings never appeared in curarized animals and so were not muscular in origin.

The effect upon the frog's heart was studied in the intact animal and upon the isolated organ perfusing it with Ringer's solution. A decrease in rate and a decline in efficiency was observed by either method when large doses or strong solutions were used but with small doses or weak solutions no changes were noticed.

When the drug was given to cats or rabbits subcutaneously in doses of 1.3 gram, per kilogram of body weight, no unusual effects were observed, but if given intravenously to rabbits a marked increase in respiration would occur about an hour and a half after its administration. Clonic convulsions would follow later but an increase in reflexes was never obtained. The pupils were very much contracted and remained so for several hours. Death occurred several days after the injection, the animal being apparently normal until the day of its death.

In order to determine whether the drug exerted a specific action upon the kidney, solutions of sodium chlorid and sodium camphorate were made isotonic with the blood and the urinary flow observed following the injection of equal amounts of each solution. The urinary flow caused by both solutions was practically identical, so any diuretic effect which the drug possesses is due entirely to salt action.

The effect upon the salivary secretion was studied in dogs by observing the flow of saliva coming from the submaxillary duct. No secretion was observed after as much as five grams of sodium camphorate.

Upon the circulation the result was in a general way the same in cats, dogs, and rabbits, producing with either small or large doses a small but constant rise in pressure, the extent of rise depending upon the depth of anesthesia. When isotonic solutions of sodium chlorid and sodium camphorate were used the extent of rise was the same, from which we

must conclude that salt action is alone responsible for the rise in pressure.

To ascertain whether the drug had any effect upon the nerves to the sweat glands, the sciatics of cats and dogs were isolated and a sweat produced on the paw by stimulation of the nerve trunk. In both animals sweating was obtained, in the dog after sixteen grams of sodium camphorate and in the cat after five grams of the drug.

In mammals, sodium camphorate was found to be a true respiratory stimulant. This was shown both by an increase in the depth of respirations and in the volume of air expired. In studying this effect, controls were made, using isotonic sodium chlorid as previously mentioned.

A review of these results shows that most of the effects of camphoric acid are due to salt action, the only specific one being its stimulating action on the central nervous system, especially upon the respiratory center. In phthisis this is one of the medullary centers affected. One who is coughing continually during the day has so exhausted this center that it will not react as usual during sleep, so the blood becomes venous and as a result sweating occurs.

If the theory be true that the sweats of phthisis are due to partial asphyxia then any drug which increases the respiration should be effective in stopping the sweating. The fact that picrotoxin, a powerful medullary stimulant, will also cause the sweats to disappear substantiates this theory. In fact strychnin has been used with favorable results.

Ann Arbor.

A CASE OF LEAD POISONING.*

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THIS patient is thirty-six years old, an automobile painter, and comes to the hospital on account of pain and soreness in the epigastrium. As regards his present illness his personal history is negative. His present trouble dates from November, 1910, although he has been "running down" as he expresses it, for the past two years. Last November, however, he became worse and had pain in his stomach, no vomiting, but severe constipation. He was in bed for four weeks, and unable to work until February, 1911. During this interval he would have an occasional attack of pain and cramps about his abdomen, lasting from one to two days and was never entirely free from pain. He then went to work again, but stopped when he became so weak the Friday preceding his entrance to the hospital, that he could hardly get to the factory. At this time the pain in his abdomen was very severe and continuous. The abdomen was tender and he had lost forty pounds during his illness.

Examination at entrance shows an anemic individual, well muscled and framed. The gums, near the insertion of the teeth both above and below, show a broken, grayish, black line, which does not rub off and is not upon the teeth. Otherwise his physical findings are negative. The laboratory findings show the urine negative, stool negative, blood pres-

*Read before the Clinical Society of the University of Michigan, April 5, 1911.

sure 137. The blood presents the most pathology, showing 2,470,000 reds, 3,500 whites and forty-two per cent hemoglobin. A differential count shows twenty-four per cent lymphocytes, seven and one-half per cent transitionals, sixty per cent polynuclears, fifteen per cent eosinophiles, two per cent basophiles, one and five-tenths per cent myelocytes. The red picture is that of a secondary anemia with extreme polychromasia and basophilic stippling. There are also several nucleated reds per smear.

There are two points in these cases of poisoning worthy of discussion. First, the influence of occupation upon the condition; second, the laboratory findings which are unique and quite distinctive.

For centuries it has been known that certain occupations predispose to such poisoning and that these occupations furnish by far the greatest number of cases. A few of such are painters, plumbers, tinsmiths, printers, typesetters, smelters, lead miners, workers in white lead factories, solderers, pottery workers and laborers on earthenware. A smaller number of cases are furnished by accidental poisoning and the various modes by which the poison may gain entrance to the body are very interesting. At times it has been traced to drinking cups of lead composition, to lead water-pipes, to hair-dye, to the habit of taking shot after meals to cleanse the blood (Dodge's case). Still more striking is the history of a family suffering from poisoning, due to the burning of barrel staves, which had previously contained white lead, and to the Queensland school children, who suffered from an epidemic on account of the paint from their desks crumbling, and being easily rubbed off like dust.

The findings vary in cases of lead poisoning, depending upon their course; thus in acute cases we get lead in the urine, polynuclear leukocytosis, and definite clinical signs and symptoms, as colic, constipation, wrist-drop, blindness, et cetera. The cases with indefinite symptoms and with a chronic course often show only two or three definite findings. First, polychromasia and basophilic stippling of the reds; second, blue line on the gums, and third, lead in the urine, appearing usually in the order named, as I will show from a series of cases. Hence we may look upon these changes in the red cells as the earliest signs of lead poisoning, occurring where the patient has no symptoms, either subjective or objective. Unfortunately we find these stipple cells in other conditions such as pernicious anemia, secondary anemia, and chlorosis, but their number is never as great as here and the other findings in these conditions aid in differentiating them.

As to the origin of these stipple cells, much work has been done since Grawitz¹ described them in cases of lead poisoning in the nineties. He worked with thirty cases of poisoning and found that their number was determined by the severity of the condition, and that in certain cases without symptoms, but with exposure, these granules were present. As he was unable to find granules in the bone marrow and from the fact that in the nucleated forms which contained granules the nuclei were apparently normal, he concluded that they were not portions of fragmented nuclei but rather a necrosis of the protoplasm, due to the action of the poison. This finding and opinion stimulated other workers and White,

Pepper, Stengel² examined twenty-one cases of poisoning without symptoms and found basophilic granules in every case. They also found nucleated forms in five cases. Simon³ studied twenty cases without symptoms and found granulations in every case and nucleated forms in several. Schmidt⁴ followed in 1903, with some interesting experimental work, in which he poisoned dogs with lead acetate and took blood from various parts of the body, including the foot, ear, and marrow. He found the same process going on in each place. He then repeated the experiment by poisoning other dogs, after ligating vessels of the ears. He found that the process went on as before, save in the ears, where neither granular red cells nor nucleated forms could be found. In the bone marrow of these experimental cases, he found the nuclei of so many reds apparently being broken up and so many more granular cells there than in the peripheral circulation, that he concluded "the granules come from degenerating nuclei, and that the process was carried on in the bone marrow and not in the circulation."

It was left for Vaughan⁵ to show that normal blood contained these granules in small numbers and that they are so small that they cannot be seen when stained with Wright's stain. He also contended that these granules were derived from nuclei of the reds and found that they were definitely increased in such conditions as give rise to an increase in nucleated forms and at no other time.

Cadwalader's⁶ work in determining the identity of these granules is worthy of mention. He studied eleven cases of lead workers without symptoms and found nucleated forms in seven and with these forms many basophilic reds. As these cases showed only a slight anemia, he was struck with this unusual finding and immediately asked himself—"Is there any relation between the number of nucleated reds and the stipple cells?" To clear up this question, work was started on sixteen lead workers with definite symptoms. In all cases he found the nucleated reds and granular cells greatly increased. He then studied three cases of poisoning from the onset of an acute attack and found that the nucleated forms appeared in the circulation first and as these began to disappear, the granular cells began to increase. In secondary and primary anemias he also tabulated results to show that the granular cells ran in accordance with and followed the appearance of nucleated reds. From these findings he concluded that the granules of stipple cells are of nuclear origin.

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EULOGY ON OLIVER WENDELL HOLMES, A. M.,
M. D., LL. D.

WILLIAM LANE LOWDER, B. S., M. D.
TIPTON, INDIANA.

INTRODUCTION.

"Art, Commerce, and Fair Science, three,
Are sisters linked in love;
They travel air, and earth, and sea,
Protected from above.

"There's beauty in the art that flings
The voice of friendship wide;
There's glory in the art that wings
Its throbbings o'er the tide.

"So if ever we gain that home in Heaven,
For whose calm rest we humbly hope to own,
In that great orchestra of the forgiven
We shall be sure to find Oliver Wendell Holmes.

"Still, his silent hand, that gently guides the pen
Will sweep the curve in the peaceful haunts of men;
Where each day's doings on life's active stage,
Arrayed in light shall crown the well-writ page."

POETS and philosophers have ever delighted to compare the course of human life to a river; perhaps a still apter simile might be found in the history of a glacier. Heaven-descended in its origin, it yet takes its mold and conformation from the hidden womb of the mountains that brought it forth. At first soft and ductile, the mass acquires a character and firmness of its own, as an inevitable destiny urges it onward in its career. Jostled and constrained by the crosses and inequalities of its prescribed path, hedged in by impassable barriers which fix limits to its movements, it yields groaning to its fate, and still travels forward seamed with the scars of many a conflict with opposing obstacles. All this while, though wasting, it is renewed by an unseen power; it evaporates, but is not consumed. On its surface it bears the spoils which, during the progress of its existence, it has made its own,—often weighty burdens devoid of beauty or value, but sometimes precious masses sparkling with gems of ore. Having at length attained its greatest width and extension, and commanding admiration by its beauty and power, the vital springs begin to fail; waste predominates over supply: it stoops into decrepitude, drops one by one the burdens which it had borne so proudly aloft, and approaches dissolution. But in being resolved into its elements, it takes all at once a new, disembarrassed, and livelier form; from its wreck arises "another, yet the same,"—a noble, full-bodied, arrowy stream, which leaps rejoicing over the obstacles that had once hemmed it in, and hastens through fertile valleys to a free existence, and a final union in the ocean with the boundless and infinite.

"There are green isles in each ocean,
O'er which affection glides;
And a haven on each shore,
When love's the star that guides."

To describe *love* in itself may be difficult and uninteresting; but the following is a pleasing and beautiful sketch of its doings:—

"In *peace*, love tunes the shepherd's reed;
 In *war*, he mounts the warrior's steed;
 In *halls*, in gay attire is seen;
 In *hamlets*, dances on the green.
 Love rules the camp, the court, the grove,
 And men below, and saints above;
 For love is Heaven and Heaven is love."

Milton says: "*Language* is but the instrument conveying to us, things useful to be known." Pope says: "Others for *language* their care express." Daniel, the prophet, says: "All the people, the nations and the *languages* fell down and worshiped the golden image."

Doctor Holmes is a personality that will frequently appear in our thoughts and come to us in our dreams. The universe, its mountains and sea, its trees, its flowers, its birds and streams were to him sources of perpetual charm, which he has given to us in classic verse and celestial song. Listen to his composition in the following prose: "Our brains are seventy-year clocks. The Angel of Life winds them up once for all, then closes the case, and gives the key into the hand of the Angel of the Resurrection. Tic-tac! tic-tac! go the wheels of thought; our *will* cannot stop them; they cannot stop themselves; sleep cannot stop them; madness only makes them go faster; death *alone* can break into the case, and, seizing the ever-swinging pendulum, which we call the heart, silences at last the ticking of the terrible escapement we have carried so long beneath our wrinkled foreheads."

Thy golden lines on angel wings—
 Thy matins to our memory brings;
 Over our heads, on slender threads,
 Gently flapping their crimson wings.

And while they are suspended there,
 Waving about in the balm' air
 Seems to the eye, longing to try,
 Their wings abroad in the azure sky.

And as we lie, with half-shut eye,
 Watching their modest attempts to fly,
 Other fair things, soon to have wings,
 Rise unbidden before mine eye.

From this life's things, its storms and stings,
 Longing to haste with heav'nward wings,
 Waiting to die, waiting, only, to fly—
 Only waiting to use their wings.

* * * * *

Come twilight gray, that clears away
 The misty dreams which o'er us stray;
 Naught now we hear save thy matins clear,
 With their sad, sweet strains forever at play.

Doctor Holmes once said: "The medical profession is the least learned of the professions, in this country at least. They have not the culture of the lawyers nor of the ministers, but they are more sensible." Doctor Oliver Wendell Holmes was a happy example of the combination of

learning and common sense; for his stock of good sense was great and unfailling, and his learning wide and deep. Oftentimes accidental and temporary successes are mistaken for the rule, and a mythical fortune or luck is pictured blindfold on a wheel. But neither the "macrocosm" nor the "microcosm" are the creatures of chance, or in anywise of the "fortuitous concurrence of atoms":

"For I doubt not through the ages on increasing purpose runs,
And the thoughts of men are widened with the process of the suns."
—TENNYSON.

HOLMES' CHILDHOOD.

Oliver Wendell Holmes was born in Cambridge, Massachusetts, in the year 1809, under the shadow—or the sunshine, shall we say?—of Harvard University. "I remember that week well," the doctor wrote in after years, "for something happened to me once at that time; namely, I was born." Nature was active that year—like a stirred volcano, casting forth also upon the world William E. Gladstone, Alfred Tennyson, Charles Darwin, Abraham Lincoln, Joseph E. Johnston, and John G. Whittier.

The world in general knows little of its *great men*:

"Whose sudden visitations, the world daze
Vanish like lightning, leave behind their silver haze:
A voice that in the distance far, far away,
Wakens the long still,—slumbering ray."

Men, as Tennyson says:

"Who follow knowledge like a sinking star—
Beyond the utmost bound of human thought."

Men, as Homer says:

"Who seek a newer world."

Adrian says:

"Ah, fleeting spirit! wandering fire,
That long has warmed my tender breast,
Must thou no more this frame inspire?
No more a pleasing, cheerful guest?
Whither, oh whither art thou flying?
To what dark undiscovered shore?"

Shelley says:

"Music, when soft voices die,
Vibrates in the memory;
Odors, when sweet violets sicken,
Live within the sense they quicken."

The discovery of a pile of old almanacs belonging to his father, gave Doctor Holmes, late in life, a whimsical view of his own birthday. "I took up that for the year 1809; opposite a certain date was an asterisk, and a note below consisting of four letters, thus:

August 27
August 28
August 29*
August 30
*Son born.

My father thus recorded my advent; and after he wrote the four letters, according to his wont, he threw black sand upon them to keep them from blotting. I am looking at it now, and there black sand glistens still." Doctor Holmes even went so far, as to have the page photographed, and never failed to regard the brief memorandum with a kind of odd pathos. He came of the Brahmin caste of New England, to quote his own invented phrase; his father (Abiel Holmes, D. D.) being a minister of the old-fashioned severe type of that period; his mother was a lady, he once wrote, bred in quite a different atmosphere from that of the strait-laced Puritanism. She was a bright, vivacious woman, of small size, sprightly manners, and good education. She lived to a great age, a quaint figure, youthful and sympathetic to the end." "Like a faithful wife as she was," her son says, "she sobered her pleasant countenance and sat down to hear us recite of 'justification,' 'adoption,' and 'sanctification,' and the rest of the program. * * * I was given to questionings, and my mind early revolted." Those who knew Doctor Holmes' father and mother well, say there was more of the intellectual character of the mother than of the father in him: perhaps this may be so, but there was a human and humane to his mother, something akin to her neighbors because of their common humanity; a simple trait of kindly interest in all who drew within the scope of their acquaintance, which also belonged to her son and made him what he became. The simplicity of the life of a minister's family in the Cambridge of that period was so unlike anything we know today (when Cambridge has become a large city), that it is difficult to believe so few years have passed since his boyish rambles were carried on in the very heart of what is now a city.

"Where smiling spring its earliest visit paid,
And parting summer's lingering blooms delayed:
Dear lovely bowers of innocence and ease,
Seats of my youth, when every sport could please,
How often have loiter'd o'er the green,
Where humble happiness endeared each scene!

* * * * *
"Along the lawn where scatter'd hamlets rose,
Unweildy wealth and cumbrous pomp repose;

* * * * *
Those gentle hours that plenty bade to bloom,
Those calm desires that ask'd but little room,
Those healthful sports that graced the peaceful scene
Lived in each look, and brighten'd all the green,—
These, far departing, seek a kinder shore,
And rural mirth and manners are no more.
There, where a few torn shrubs the place disclose,
The village preacher's modest mansion rose.

* * * * *
"Unskillful he to fawn, or seek for power,
By doctrines fashion'd to the varying hour;
For other arms his heart had learnt to prize,
More bent to raise the wretched than to rise.

* * * * *
"Thus to relieve the wretched was his pride,
And e'en his failings lean'd to virtue's side;
But in his duty prompt at every call,
He watch'd and wept, he pray'd and felt for all;

And, as a bird each fond endearment tries,
 To tempt his new-fledged offspring to the skies,
 He tried each art, reprov'd each dull delay,
 Allured to brighter worlds, and led the way.

* * * * *

"At church with meek and unaffected grace,
 His looks adorn'd the venerable place,
 Truth from his lips prevail'd with double sway,
 And fools, who came to scoff, remain'd to pray.

* * * * *

"Beside the struggling fence that skirts the way,
 With blossom'd furze unprofitably gay—
 There, in his noisy mansion, skill'd to rule,
 The village master taught his little school:
 A man severe he was, and stern to view,
 All knew him well and every truant knew;
 Well had we boding tremblers learned to trace
 The day's disasters in his morning face.

* * * * *

"The village all declared how much he knew,
 'Twas certain he could write and cipher too;
 In arguing too, the parson own'd his skill
 For e'en though vanquish'd, he could argue still.
 But past is all his fame. The very spot
 Where many a time he triumph'd is forgot.

* * * * *

"The good old sire the first prepared to go
 To new-found worlds, and wept for other's woe,
 But for himself, in conscious virtue brave,
 He only wish'd for worlds beyond the grave."

The men of Doctor Holmes' day were not nursed in letters; there was no Eton, and no Bluecoat School to which the younger boys were sent. They stayed at home and learned their first lessons, but they frequently studied on the principle of some church-goers who trust that an hour on Sunday will give them absolution for a week of indulgence: studying served by the way, as it were, a kind of toll-gate to be passed before the good things of life set in. The boys of those days chopped wood, made fires, ran errands, skated, birds'-nested, or went nutting, according to the seasons. Their heads were not burdened by breathing a scholastic atmosphere. But if the education to a life of literature was wanting, the finer inciters to true thought and life were not wanting.

HOLMES' MANHOOD.

Doctor Holmes loved nature, because he was in a true sense a "child of nature." He was full of the milk of human kindness because he had been nursed at the breasts of nature. Nature is, after all, the fountain-head of all beauty and goodness, and there never was a true child of nature that was not beautiful and good. If simplicity of heart is coupled with great power of intellect, it represents perfect and complete humanity. It is the type that was embodied in Oliver Wendell Holmes.

"As the old stars sink to eternal rest,
 Calmly one by one in the silent west,
 And newer stars arise in radiance east,
 To be succeeded by the dawn and then the day,
 So through the night of the past sank the ray,
 To be succeeded by the dawn of the day,
 In whose sunset and sunrise is euthanasia."

The stage and lecture room have seemingly nothing in common; neither the poet and physician; yet, the central figures in both places, the great actor and the medical teacher, play strikingly similar rôles in life's great drama. Shakespeare says:

"All the world's a stage,
All the men and women are merely players,
They have their 'exits' and their 'entrances'—
And each one in his time plays many parts,
His acts being 'seven ages'."

The actor portrays man in his joyful and his melancholy moods, in his passions and gentler emotions, in his frailty and in his strength. The teacher of clinical medicine likewise sketches man in all these variable phases of mental and physical being that go to make up human life—"the seven ages of man." The actor reveals the evolution of all that is human. The physician exposes the pulleys, the ropes, the levers and all the rest of the minute machinery, by means of which the human element in the individual is evolved and the wheels of human temperament and character are made to go 'round. Both the actor and the physician are "mighty carriers" of truth, and as such typify the most exalted forms and species of humanity. Oceans, as it were,—intellectual oceans toward which all rivers of thought flow and from which now the isles and continents of wisdom receive their glistening dew and refreshing showers. Their subject is life, their object truth. They bring to the living the message of life. When their own career is ended, there is nothing that binds them to the generations that follow. The actor is forgotten because the message which he delivers is hushed in the silence of the tomb. The physician and the poet has a thousand claims to the generation in whose midst he towered. When he passes to the Great Beyond, the footprints left by him in the sands of time may be washed away by the tide of forgetfulness. The spoken message often dies with those who heard it. Doctor Oliver Wendell Holmes was both an actor and a great teacher. He impersonated on the stage of his own life, a character, so marvelously original and wonderfully great, that the survivors of the generation that heard, saw, and knew him, are still captivated by the magic of his name. But, we the younger men know him only through his writings—a legacy bequeathed to all posterity. What a blessing that such a physician could wield his pen as masterfully as he used his tongue! Doctor Holmes has left us a written legacy of his greatness.

Medical science has made great strides forward since the days of Doctor Holmes, but are the medical men of today greater than those of a quarter of a century ago? You will remember that Doctor Oliver Wendell Holmes, it was, who first urged the necessity of asepsis (cleanliness) in all parturient cases. He was the first American to write an essay on puerperal septicemia, showing its cause to be that of infection. While he did not claim to know all about the bacillus—the size of its head or the curl of its tail—yet he did much to impress upon the minds of the laity and his colleagues the absolute necessity of asepsis. Doctor Holmes' article on the "Contagiousness of Puerperal Fever" was written

in the early "forties," at a period in the history of medicine, when to announce anything new—any departure, was to hazard condemnation from both the populace and physicians.

Grace in eloquence in the lecture hall should not be separated from grace in the pulpit, or at the bar. Articulation is the first requisite for good speaking or lecturing. "Words should be delivered from the mouth, as beautiful coins, newly issued from the mint; deeply and accurately impressed, perfectly finished; neatly struck by the proper organs, distinct, in due succession, and of due weight." How rarely do we hear a lecturer or a speaker whose vocal organs fulfill their office so perfectly as to answer to this beautiful description! The voice of song is not sweeter than the voice of eloquence; and there have been eloquent physicians as well as eloquent lawyers and parsons. Our poet-physician was "a rainbow to the storms of life."

"Poets are the mirrors of the gigantic shadows,
Which Personified Futurity casts down upon the Present."

—SHELLEY.

"Blessings be with them, and eternal praise,
Who gave us nobler loves and nobler cares;
The poets, who on earth have made us heirs
Of truth and pure delight by heavenly lays!"

—WORDSWORTH.

"When musing on companions gone,
We doubly feel ourselves alone."

—SCOTT..

"How noiseless falls the foot of Time,
That only treads on flowers."

—SPENCER.

"While memory watches o'er the sad review
Of joys that faded like the morning dew."

—CAMPBELL.

"This narrow isthmus 'twixt two boundless seas:
The past, the future—two eternities."

—MOORE.

"When spring unlocks the flowers to paint the laughing soul."

—HEBER.

Opportunity is all the true man asks, equality of chance with the boundless future before him, limited only by his capacity to do and to be. This privilege will not be denied when the humble and the mighty meet upon even ground as equal guests, and know and feel that prosperity is doubled, adversity halved, by sharing with one's fellow-men.

"Spring surprises the world of winter with caprices and wiles that lure to indiscretions and then nips with frowns, charming with dear, uncertain delights unknown to South or Golden West. But June is the marriage month, the time of matings, and the whole great land joins hands in the mystic rites of the communion of flowers. The magnolias and the orange blossom, the scarlet buckeye and glimmering dogwood are gone, and so are the wind-flower, the trailing arbutus, the pale blue

wooly anemone of the prairies, the yuccas of the desert. But everywhere are the roses."

The power to wield thought or language to the best advantage is the greatest power belonging to man, and each should be induced to seek and explore for himself the golden land of English literature. However, it is not necessary for him to attempt to read everything, any more than it would be necessary that a person should pass through every contagious disease of human nature before he can enjoy good health. To excite or induce proper interest and enthusiasm should be the art and aim of all composition. We have doubtless all heard about the "fine frenzy" of the poet; but, as an experienced teacher and writer has well said, "even the child's mind is a teeming nest," in which

"Half conscious things stir with a helpless sense of wings;
Lift themselves, and tremble long, with premonitions sweet of song."

The steam engine, when not hitched to anything, is but an ingenious and interesting curiosity; but when it is attached to the multifarious industry of mankind, it moves the whole world. So it is with language in regard to thought. Man is nothing in this world except what rigid discipline makes of him, as the finest tree in the nursery is the one from which the good gardener has cut away the vicious shoots as fast as they appeared. The Latin poet, Horace, gives us a bit of wholesome advice in the following couplet:

"A youth who would the Olympic honors gain,
All arts must try, and every toil sustain."

It was said of James Smith, of the "Rejected Addresses," that "if he had not been a witty man he would have been a great man." The poet, Hood's humor and drollery kept in the background the pathos and beauty of his soberer productions; and Doctor Holmes, we suspect, might have ranked higher, especially among a certain class of readers, than he now does, had he never written his "Ballad of the Oysterman," his "Comet," and his "September Gale." Such lyrics as "La Grisette," "The Puritan's Vision," and that unique compound of humor and pathos, "The Last Leaf," show that he possessed power—the power of touching the deeper chords of the heart, and of calling forth tears as well as smiles. Who cannot feel the power of this simple, yet pathetic picture of the old man, in the last mentioned poem?

"But now he walks the streets,
And he looks at all he meets,
Sad and wan;
And he shakes his feeble head,
That it seems as if he said,
'They are gone!'"

"The mossy marbles rest
On the lips that he has pressed
In their bloom;
And the names he loved to hear
Have been carved for many a year
On the tomb!"

Doctor Holmes has been likened to Thomas Hood; but there is little in common between them, save the power of combining fancy and sentiment with grotesque drollery. Hood, under all his whims and oddities, conceals the vehement intensity of a reformer. The iron of the world's wrongs has entered into his soul. There is an undertone of sorrow in his lyrics.

In 1840 Doctor Holmes married Miss Amelia Lee Jackson, a lady exquisitely adapted to make him happy. She was not beautiful, not in common phrase—a woman of society, but possessed a refinement, a wit, a charm, a power of self-forgetfulness, which were all her own. She was known to a small circle only, but wherever she allowed herself the opportunities to know and be known, she was beloved. There were three children, only one of whom, Judge Holmes, survives his father. Doctor Holmes suffered the pain of seeing his wife and a son and a daughter “go before” him. Nevertheless life was very sweet to him, and he bore the trials of age cheerfully, dying October 7, 1894. He wrote once to the poet, Lowell: “Life is never monotonous, absolutely, to me. I am a series of surprises to myself in the changes that years and ripening, and it may be a still further process which I need not name, bring about. The movement onward is like changing place in a picture gallery,—the light fades from this picture and falls on that; * * * but what a strange thing life is, when you have waded up to your neck and remember the shelving sands you have trodden!” But all the writing in the world about Doctor Holmes appears totally inefficient to represent his delightful ebullient spirit, freshening and sweetening every subject that he touched. The world soon found that a *new wit* was astir under the old pudding-stone, and “that wit” they could not do without. Every year, from 1851 until just before his death, he wrote and read a class poem; every “dinner-table” in Boston aspired to listen to his words; every occasion of importance called for his presence. Loving and beloved, he passed on his cheerful way. The cabman who drove him, the maid who put on his shoes, every one who performed the slightest service for him, loved him. No wonder life was not all dark to the one who shed such sunshine:

“We'll treasure the ‘dust’ that still remains,
Shield it from loss and darksome stains;
The golden verse with its cheering thrill
Shall speak the loved accents still;
The strain of the song that fled away
Our hearts shall feel at the close of day.”

DOCTOR HOLMES AS A POET.

“Science is a psalm and a prayer.”

—PARKER.

Doctor Oliver Wendell Holmes was nature's poet. Nowhere in nature do we find chance. Every event is governed by fixed laws. They assume protean guises, are doubtless an essential unit everywhere. It may disappear from this earth; still—

“Somewhere yet that atom's force
Moves the light-poised universe.”

This conversion of force is termed the "correlation of the physical forces," the grandest law nature offers for the contemplation of the human mind. The forces of nature are strangely linked with our lives. Everywhere a divine hand is developing ideas tenderly and wondrously related to human needs. To the thoughtful mind, all phenomena have a hidden meaning:

"To matter or to force, the all is not confined;
Beside the law of things is set the law of mind;
One speaks in rock and star, one within the brain
In unison at times, and then apart again.
And both in one have brought in hither
That we may know our whence and whither.

"The sequence of law we learn through mind alone;
We see but outward forms, the soul the one thing known;—
If she speak truth at all, the voices must be true
That give these visible things, these laws, their honor due,
But tell of one who brought us hither
And holds the keys of whence and whither.

"He in His science plans what no known laws foretell;
The wandering fires and fixed alike are miracle:
The common death of all, the life renewed above,
Are both within the scheme of that all-circling love.
That seeming chance that cast us hither
Accomplishes his whence and whither."

Another writer says:

"Science teaches us to see the invisible
In Nature as well as the visible:
To picture those things to our mind's eye
That entirely elude the physical eye—
To see the very atoms in motion and in rest,
To follow them forth into the realm of the blest."

Again:

"The waves that moan along the shore,
The winds that sigh in blowing,
Are sent to teach a mystic love
Which men are wise in knowing."

—TENNYSON.

Poetry is that species of composition in which words are symmetrically arranged, that is, arranged in lines (verses) containing a definite number and succession of accented and unaccented syllables.—SWINTON. However, "poetry" is sometimes narrowed to an equivalence with *verse*, or metrical composition; "verse" is sometimes extended to an equivalence with *poetry*; and "rhyme" is sometimes used as a synonym of *poetry* and as the antithesis of *prose*: thus—

"Things unattempted yet in prose or rhyme."

—MILTON.

On the other hand, "prose" is often used to denote what is *dull* and *commonplace*, without regard to whether the *composition* is *metrical* or *nonmetrical*. The following beautiful passage from DeQuincey is an illustration of rhythmic prose:

"Where, out of Sir Thomas Browne, shall we hope to find music so

Milonic, an intonation of such solemn chords as are struck in the following opening bar of a passage in the *Urn Burial*:—"Now since these bones have rested quietly in the grave, under the drums and tramlings of three conquests,' et cetera. What a melodious ascent as of a prelude to some impassioned requiem breathing from the pomps of the earth and from the sanctities of the grave! What a fluctus decumanus of rhetoric!

Time expounded not by generations or centuries, but by vast periods of conquests and dynasties; by cycles of Pharaohs and Ptolemies, Antiochi and Arsacides! And these vast successions of time distinguished and figured by the uproars which revolve at their inaugurations—by the drums and tramlings rolling overhead upon the chambers of forgotten dead—the trepidations of time and mortality vexing, at secular intervals, the everlasting Sabbaths of the grave!"

What wonderful music of language! What euphonious words and metrical arrangements! What a sublime thought is expressed by Doctor Young in verse! In speaking of "OLD AGE," he says:

"It should walk thoughtful on the silent shore
Of that vast ocean it must sail so soon,
And put good works on board, and wait the wind
That shortly blows us into worlds unknown."

The first two lines are excellent and beautiful—unsurpassed in language—but in the last two lines, the Doctor, we fear, carries the figure or simile too far; and possibly had better have omitted the last two lines. Tom Moore has written a song in which a lady is requested to step forward and shame the stars with her eyes. It was a pity that this song was not written early enough for Shenstone to get the benefit of it; for this writer says, in regard to his Phyllis:

"I could lay down my life for the swain
That will sing but a song in her praise."

Blacklock gives us some terrible "dog-barking;" and we doubt whether even Cerebus could match it:

"Up to the stars sprawling mastiffs fly,
And add new horrors to the frightened sky."

Sheffield says:

"Of all those arts in which the wise excel,
Nature's chief masterpiece is writing well."

"Poetry," says Professor Bain, "agrees generically with painting, sculpture, architecture, and music; and its specific mark is derived from the instrumentality employed. Painting is based on color, sculpture on form, music on a peculiar class of sounds, and poetry on the meaning and form of language."

Doctor Holmes' poems, some of them at least, resemble those of Goldsmith. Others may be likened to those of Burns. Of any one poem that he has written, the one entitled "Under the Violets" is the favorite of most readers—the poem of poems. Not that it is the most brilliant or profound lyric in our language, but because it combines in more balanced perfection than any other, all the qualities that go to the production of a

fine poetical effect,—sublime in thought and imagery—it touches the sympathetic chords in every human breast, whose vibrations attune to heavenly melody. We give in full this beautiful elegy.

An elegy is defined as a song of lamentation, in which the writer praises the life and mourns the death of someone. Does this poem meet this close definition? Some may say it does not. We will venture this far:—It is a production where merely a tone of melancholy pervades the sentiments, and grief is not actually expressed.

PROSODY.

Each stanza is called a quintan—each consisting of five lines. The meter is iambic tetrameter—each line consists of four feet (tetrameter). Each foot is composed of two syllables, the second of which is accented (iambus).

UNDER THE VIOLETS.

"Her hands are cold; her face is white;
No more her pulses come and go;
Her eyes are shut to life and light;—
Fold the white vesture, snow on snow,
And lay her where the violets blow.

"Put not beneath a graven stone,
To plead for tears with alien eyes;
A slender cross of wood alone
Shall say, that here a maiden lies
In peace beneath the peaceful skies.

"And gray old trees of hugest limb
Shall wheel their circling shadows round
To make the scorching sunlight dim
That drinks the greenness from the ground,
And drop their leaves on her mound.

"When o'er their boughs the squirrels run,
And their leaves the robins call,
And, ripening in the autumn sun,
The acorns and the chestnuts fall,
Doubt not that she will heed them all.

"For her the morning choir shall sing
Its matins from the branches high,
And every minstrel-voice of Spring,
That trills beneath the April sky,
Shall greet her with its earliest cry.

"When, turning round their dial-track,
Eastward the lengthening shadows pass,
Her little mourners clad in black,
The crickets, sliding through the grass
Shall pipe for her an evening mass.

"At last the rootlets of the trees
Shall find the prison where she lies
And bear the buried dust they seize
In leaves and blossoms to the skies.
So may the soul that warmed it rise!

"If any, born of kindlier blood,
Should ask, What maiden lies below?
Say only this: A tender bud,
That tried to blossom in the snow—
Lies withered—where the violets blow."

We can, with propriety, pay the same tribute to Doctor Holmes' poems that Doctor John Keats paid to George Chapman, an English dramatic poet, and the earliest translator of Homer:

"Much have I traveled in the realms of gold,
And many goodly states and kingdoms seen;
Round many western islands have I been
Which bards in fealty to Apollo hold.
Oft of one wide expanse had I been told
That deep-browed Homer ruled as his demesne:
Yet did I never breathe its pure serene
Till I heard Chapman speak out loud and bold;
Then I felt like some watcher of the skies
When a new planet swims into his ken;
Or like stout Cortes when with eagle eyes
He stared at the Pacific, and all his men
Looked at each other with a wild surmise—
Silent, upon a peak in Darien."

And like Homer's songs, they have been chanted and sung in palace and hovel—they are universal or national and may be read by any and all people. The following lines of Coleridge exemplify the poetry of Doctor Holmes:

"Strongly it bears us along in swelling and limitless billows;
Nothing before and nothing behind but the sky and the ocean."

Who cannot be entertained by such delightful poems as the following: "Under the Violets," "The Voiceless," "The Last Leaf," "The Chambered Nautilus," "The Deacon's Masterpiece," and "Old Ironsides."

Doctor Holmes' genius, as shown in the "Autocrat of the Breakfast-Table," will carry his name down the tide of time. It was succeeded by nine volumes of prose, interrupted only by what now amounts to three of verse, making thirteen volumes of his complete works. It is, even in quantity, no small showing, when we recall in addition his thirty-five years of medical professorship. Doctor Holmes was no idler, he loved to work and to do his work well. He scorned no expenditure of time in order to find the right word and to bring his verse into accurate form. Oliver Wendell Holmes' poems like—

Flowers give a happier smile to beauty's lip,
And a peaceful joy to the weary and the sick.
They charm the mind of the beauteous bride—
Give hope of resurrection to the waiting dead.

The air of the rich man's palace is heavy, as it were, with their fragrance; and they are given as blessings even to the poorest one that wanders beneath the vault of heaven.

Haply [with the poet Gray] we may say:
"Oft have we seen him at the peep of dawn,
Brushing, with hasty steps, the dews away,
To meet the sun upon the upland lawn.
Him have we seen the greenwood side along,
While o'er the heath we had our labor done,
Oft as the woodlark piped her farewell song,
With wistful eyes pursue the setting Sun."

"There, at the foot of yonder nodding beech,
That wreathes its old fantastic roots so high,
His listless length at noontide would he stretch,
And pore upon the brook that babbles by.

* * * * *

"One morn I miss'd him on the 'custom'd hill,
Along the heath, and near his favorite tree:
Another came; nor yet beside the rill,
Nor up the lawn, nor at the wood was he.

"The next, with dirges dire, in sad array,
Slow through the church-path we saw him borne.
Approach and read (for thou canst read) the lay,
'Graved on the stone beneath yon aged thorn.

"There, scatter'd of the earliest of the year,
By hands unseen, are showers of violets found:
The red-breast loves to build and warble there,
And little footsteps lightly print the ground.

* * * * *

"Hark! how the sacred calm, that breathes around,
Bids ev'ry fierce tumultuous passion cease.
In still, small accents whisp'ring from the ground
A grateful earnest of eternal peace.

* * * * *

"No farther seek his merits to disclose,
Or draw his frailties from their dread abode,
There they alike in trembling hope repose,
The bosom of his father and his God."

*A TRIBUTE TO THE DICTION OR LANGUAGE OF
DOCTOR OLIVER WENDELL HOLMES.*

"Give us, of every language, first our vigorous English,
Stored with imported wealth, rich in its natural mines,
Grand in its rhythmical cadence, simple for household employment,
Worthy the poet's song, fit for the speech of man.

"Not from one metal alone the perfectest mirror is shapen,
Not from one color is built the rainbow's aerial bridge;
Instruments blending together yield the divinest of music,
Out of myriad of flowers sweetest of honey is drawn.

"So unto thy close strength is welded and beaten together
Iron dug from the North, ductile gold from the South;
So unto thy broad stream the ice-torrents, born in the mountains,
Rush, and the rivers pour, brimming with sun from the plains.

"Thou hast the sharp edge and the downright blow of the Saxon,
Thou the majestic march and the stately pomp of the Latin;
Thou the euphonious swell, the rhythmical roll of the Greek;
Thine is the elegant suavity caught from sonorous Italian;
Thine the chivalric bow, the courteous grace and arch of the Norman;
Thine the inborn guttural strength of the Teutonic German.

"Rafted by firm-laid consonants, windowed by opening vowels,
Thou securely art built, free to the sun and free to the air;
Over thy feudal battlements trail thy wild tendrils of thy fancy,
Where in the early morn are heard, the matins of our earliest birds;
Fair Science looks out from thy dome, Love whispers in at thy lattice,
While o'er thy bastions art flashes its glittering sword.

"Not by corruption rotted, nor slowly by ages degraded,
Have the sharp consonants gone crumbling from your words;
Virgin is their edge, like granite blocks chiselled by Egypt;
Just as when Shakespeare and Milton laid them in Celestial song.

"Fitted for every use like a great majestic river,
 Blending thy various streams, stately thou flowest along,
 Bearing the white-winged ship of Poesy over thy bosom,
 Laden with spices that come out of the tropical isles,
 Fancy's pleasuring yacht with its bright and fluttering pennons,
 Logic's frigates of war, and the toil-worn barges of trade.

"How art thou freely obedient unto poet or speaker
 When, in a happy hour, thought into speech you translate!
 Caught on the word's sharp angles flash the colors of your fancy
 Grandly the thought rides his words, as a good horseman his steed.

"Now, clear, pure, hard, bright, one by one, like unto hailstones,
 Short words fall from his lips fast as the first of a shower;
 Now in a twofold column, Spondee, Lamb, and Trochee,
 Unbroke, firm-set, advance, retreat, trampling along;
 Now—a sprightlier springiness, bounding triblicate syllables,
 Dance the elastic Dactyls in musical cadences on;
 Their voluminous coil intertangling like huge anacondas,
 Roll overwhelmingly onward the sesquipedalian words.

"Flexile and free in thy gait, simple in all thy construction,
 Yielding to every turn thou bearest thy rider along;
 Now like our draught horse, serving our commonest purposes,
 Now bearing the poet, Pegasus-like, to the sky.
 Not prisoned in fixed rules, thou art no slave to a grammar:
 Thou art an eagle uncaged, scorning the perch and the chain.
 Hadst thou been fettered and formalized—been tamer and weaker,
 Then could the poor slave step with the grand freedom of gait?
 Let, then, grammarians rail and foreigners sigh for thy sign-posts—
 Wandering lost in thy maze, thy wilds of magnificent growth.

"Call thee incongruous, wild, of rule and of reason defiant;
 We in thy wildness a grand freedom of character find.
 Therefore we praise thee and never can cease from rejoicing,
 Knowing that good, stout English is ours and our parents' tongue.
 Give us its varying music, the flow of its free modulations,
 We do not covet the full roll of the glorious Greek,
 Luscious and feeble Italian, Latin so formal and stately,
 French with its nasal lisp, nor German inverted and harsh,
 Not while our organ can speak with its voices, wonderful."

L'ENVOI.

"Play on the soft flute of love, blow the loud trumpet of war,
 Sing with high sesquiatro, or drawing its full diapason,
 Shake all the air with the grand storm of its pedals and stops."

Literature is ever debtor to science and medicine.

LINES INSCRIBED UPON A CUP FORMED FROM A SKULL.

WRITTEN BY LORD BYRON, AT NEWSTEAD ABBEY, 1806.

"Start not—nor deem my spirit fled:
 In me behold the only skull,
 From which, unlike a living head,
 Whatever flows is never dull.

"I lived, I loved, I quaff'd like thee:
 I died, let earth my bones resign:
 Fill up—thou canst not injure me;
 The worms hath fouler lips than thine.

"Better to hold the sparkling grape,
 Than nurse the earth-worm's slimy brood,
 And circle in the goblet's shape
 The drink of God's, than reptile's food.

"Where once my wit, perchance, hath shone.
In aid of others let me shine;
And when, alas! our brains are gone,
What nobler substitute than wine?

"Quaff while thou canst, another race,
When thou and thine, like me, are sped,
May rescue thee from earth's embrace,
And rhyme and revel with the dead.

"Why no—since through life's little day
Our heads such sad effects produce?
Redeem'd from worms and wasting day,
This chance is theirs, to be of use."

Lord Byron gives the following account of this cup:

"The gardener in digging discovered a skull that had probably belonged to some jolly friar or monk of the abbey, about the time it was demonastiered. Observing it to be of giant size, and in a perfect state of preservation, a strange fancy seized me of having it set and mounted as a drinking cup. I accordingly sent it to town, and it returned with a very high polish, and of a mottled colour like tortoise shell." It is now in the possession of Colonel Wildman, proprietor of Newstead Abbey. Also, in several of our dramatists, mention is made of the custom of quaffing wine out of similar cups. For example, in Dekker's "Wonder of a Kingdom," Forrenti says:

"Would I had ten thousand soldiers' heads,
Their skulls set all in silver; to healths
To his confusion who first invented war."

Shakespeare, in "All's Well That Ends Well," makes the King of France say: "We thank you, maiden; but be not so credulous of cure, when our most learned doctors leave us and the congregated college have concluded that laboring art can never ransom nature from her inaidable estate; I say we must not so stain our judgment, or corrupt our hope, to prostitute our past-cure malady to empirics, or to disserve so our great self and our credit, to esteem a senseless help when help past sense we dream." Thus Helena, the maid, replies:

"Dear sir, to my endeavors give consent;
Of heaven, not me, make an experiment.
I am not an imposter that proclaim
Myself against the level of mine aim;
But know I think and think I know most sure
My art is not past power nor you past cure."

To which the king says: "Art thou so confident? Within what space hopest thou my cure?"

Helena, in answer, replies:

"The greatest grace lending grace
Ere twice the horses of the sun shall bring
Their fiery torches his diurnal ring,
Ere twice in murk and occidental damp
Moist Hesperus hath quenched his sleepy lamp,
Or four and twenty times the pilot's glass
Hath told the thievish minutes how they pass,
What is infirm from your sound parts shall fly,
Health shall live free and sickness freely die."

Shakespeare again, in his Sonnets, makes this comparison:

"My love is as a fever, longing still
For that which longer nurseth the disease,
Feeding on that which doth preserve the ill,
The uncertain sickly appetite to please.
My reason, the physician to my love,
Angry that his prescriptions are not kept,
Hath left me, and I desperate now approve
Desire is death, which physic did except.
Past cure I am, now reason is past care,
And frantic-mad with evermore unrest."

He closes his Sonnets thus:

"Cupid laid by his brand and fell asleep:
A maid of Dian's this advantage found,
And his love-kindling fire did quickly steep
In a cold valley-fountain of that ground;
Which borrow'd from this holy fire of love
A dateless heat, still to endure,
And grew a seething bath, which yet men prove
Against strange maladies a sovereign cure.
 • • • • • •
Growing a bath and healthful remedy
For man diseased; but I, my mistress' thrall,
Came there for cure and thus by that I prove,
Love's fire heats water, water cools not love."

Then in "The Tempest" he makes Ariel sing:

"Full fathom five thy father lies:
Of his bones are coral made;
Those are pearls that were his eyes;
Nothing of him that doth fade
But doth suffer a sea change
Into something rich and strange."

Thus expressing beautifully in literature, a scientific thought and a chemical phenomenon.

Then—

Quacks may vaunt—they may increase—
Multiply on earth—from its face never cease!
Colleges may vascillate—iniquitous become—
Engender dissent—to prejudice succumb—
Feed vanity, seek self and reputation;
But the true science of medicine
Stands forth in its spotless nature—
A beautiful superstructure—
Enduring as the rocky sea-girt isle,
That has through all ages withstood,
The lashing billows of envy and ire—
The foaming ocean in madden'd attire.

Then—

"Nail to the mast her 'holy form,'
Set every threadbare sail,
And give her to the god of storms:
The lightning and the gale!"
—OLD IRONSIDES.

A short time ago I read a stanza in Voltaire, which, like many things he says to the masses, is drawn from his deep hoard of knowledge and contains a pure gem of truth:

"Oh! who could bear the burden of his life,
 The sad remembrance of the whilom strife,
 The threat'ning ills that hover round his way,
 If the dear God, to ease man of his pain,
 Had not so made him thoughtless, careless, vain,
 That he might be less wretched in his day."

I can think of but one way, only, that leads to real unhappiness, and that's when a person is vain and frivolous. And the above lines contain much wisdom; for it is just those people who lack the strength to endure sorrowful recollections of the past and the anxiety concerning their futures, that are so deeply indebted to Nature for the ability of thoughtlessly and unconsciously enjoying their pitiful present. This will not bring them happiness it will only make them less miserable; for the real bliss of living they will never learn to know. He can only understand that, who is capable of quiet reflection, or, if you will, who is able to grasp the meaning of both past and future at once. Many persons are best able to enjoy life by retrospection; and whenever we wish to thoroughly enjoy existence, we have only need to awake within ourselves a vivid remembrance of the various periods of our lives, childhood, youth and manhood. Oftentimes the greatest sorrow brings an increase of our life experience; how could we otherwise understand the triumphant delight which martyrs have felt under torture by fire and rack? They felt that their torment only confirmed their confidence in the strength of their own souls, pervaded as they were by an illusion or a truth that their tormenters sought to tear or kill. The worst that could be inflicted upon an individual of that kind only serves to develop the highest enjoyment of his person-ality.

And so all the tragedy of life, which a shallow philosophy pronounces to be the misery of the world, is merely another, higher form of enjoyment in life, peculiar to lofty souls. When death, at last, steps in it is like the "sleep that comes after a holiday," when people have been so long in an ecstasy of delight, that they are weary at last and have no strength for future enjoyments:

"Such is the rich inheritance
 The children of the world shall own,
 When crossed the wearisome expanse,
 And fate's supreme decrees are known."

* * * * *

"Vast Commerce, with her busy hum of men,
 Owes to the sword, less homage, than the pen."

Many of the ancient heathen writers considered poetry as a gift especially vouchsafed to man by the gods themselves; and many enlightened Christians suppose that it was revealed to man from the summit of Mount Sinai, amid the thunders of the giving of the law and testimony. Among the heathen nations the question of its origin was warmly debated, and the Egyptians and Phoenicians contended for the high national honor with much zeal and ability. In the third book of the poem "Pharsalia," the poet alludes to this controversy in the following lines:

"Phoenicians first, if ancient fame speak true,
The sacred mystery of letters (poetry) knew;
They first by sound, in various lines designed,
Expressed the meaning of the thinking mind;
The power of words by various forms conveyed,
And useful science everlasting made."

While, on the other hand, it was claimed for Egypt that there—

"First the marble learned to mimic life,
The pillared temple rose—and pyramids
Whose undecaying grandeur laughs at time.
'Twas thus the sun was shown his radiant way,
And Heavens were taught to roll.
There first the mind breathed out in speaking forms
That made all else immortal."

Moses, we remember, commanded the children of Israel, that on the day they should pass over Jordan to possess the land long promised to their fathers, they should set up monuments, yea, monuments of enduring granite, in the mountain of Ebal, and should write upon them all the words of the law. First, the finger of the Almighty is put forth, tracing deep in the hewn and polished rock, in bold and unmistakable characters, the divine will (poetry) to man. Second, Moses is commanded to write "precepts of civil policy" (poetry) for Israel; and, third, Moses commands his brethren that when they should safely make the passage of the Jordan, and rest from their wanderings and their toils in the Land of Promise, they should perpetuate the kindness of the God of their fathers by writing upon granite monuments the commands and precepts (poetry) of the Great Lawgiver.

How apt is the effusion of a modern poet, who, impressed with the certainty of the divine origin of the art, exclaimed:

"When twice twelve hundred years had run
Since first our firmament the sun
Illumed with living light;
Jehovah's time, Jehovah saw,
From Sinai's top proclaimed the law,
And there the same did write.

"Thus saith the sacred page—what then,
In the great list, can, like the pen,
A pure Almighty patron quote?
What other art can date its rise
With Him who formed the earth and skies,
Both ours, and spheres remote!

"Think then, no idle art to trace
The lineaments of thoughts with grace,
With ease and beauty of design;
Since 'tis the art to which alone
We owe what history makes known,
And feel the giant march of mind!

"'Tis this alone that makes blest
Of what each sage and sire possessed,
And opes the living fount of Light;
Gives love its charms and laws their sway,
Lends commerce wings, and us a ray
Of hope to cheer while we write."

His sarcasm directed against oppression and bigotry, at times betrays the earnestness of one whose own withers have been wrung.

Holmes wrote simply for the amusement of himself and his readers. He deals only with the vanities, the foibles, and the minor faults of mankind, good-naturedly and almost sympathizingly suggesting excuses for folly, which he tosses about on the horns of his ridicule. He broadened by his writings, the face of our care-ridden generation, and realized for himself the truth of that ancient songster's wise declaration, that "a merry heart is a continual feast."

Listen to his *harp* again, while thus he sweetly sings to us of the "Old Man":

"My grandmamma has said—
Poor old lady she is dead
Long ago—
That he had a Roman nose
And his cheek was like a rose
In the snow."

"But now his nose is thin,
And it rests upon his chin
Like a staff;
And a crook is in his back,
And a melancholy crack
In his laugh."

"I know it is a sin
For me to sit and grin
At him here;
But the old three-cornered hat,
And the breeches, and all that,
Are so queer!"

"And if I should live to be
The last leaf upon the tree
In the spring,
Let them smile, as I do now,
At the old forsaken bough
Where I cling."

Who could harm the kind harper? Whom did he ever hurt? He carries no weapons, save the harp on which he plays to you; and with which he delights the great and humble, young and old, the captains in the tents or their soldiers round the fire, or the women and children in the villages, at whose dwelling he enters and sings his simple songs of love and beauty. The following epigrammatic quotations from the poem entitled "The Deacon's Masterpiece" (The Wonderful One Horse Shay), by Doctor Holmes, are worthy our notice, at this place, doubtless:

"Have you ever heard of the wonderful one-hoss shay,
That was built in such a logical way
It ran a hundred years to a day?
And then, of sudden, it—ah, but stay,
I'll tell you what happened without delay,—
Scaring the parson into fits,
Frightening people out of their wits,—
Have you ever heard of that, I say "

* * * * *

"Now, in building of chaises, I tell you what,
There is always somewhere a weakest spot,—
In hub, tire, felloe, in spring or thill,
In panel or crossbar or floor or sill,

In screw, bolt, thoroughbrace,—lurking still,
 Find it somewhere you must and will,—
 Above or below, or within or without,—
 And that's the reason, beyond a doubt,
 A chaise breaks down, but doesn't wear out.
 "But the Deacon swore (as deacons do,
 With an "I dew vum," or an "I tell yeou")
 He would build one shay to beat the taown,
 'n' the kaounty 'n' all the kentry raoun';
 It should be so built that it couldn' break daown;
 'Fur,' said the Deacon, 't's mighty plain
 Thut the weakes' place mus' stan' the strain;
 'n' the way t' fix it, uz I muntain, is only jest
 T' make that place uz strong uz the rest.'
 "So the Deacon inquired of the village folk
 Where he could find the strongest oak,
 That couldn't be split nor bent nor broke,—
 That was for spokes and floor and sills;
 He sent for lancewood to make the thills;
 The crossbars were ash, from the strongest trees;
 The panels of white-wood, that cuts like cheese,
 But lasts like iron for things like these;
 The hubs of logs from the 'settler's ellum,'
 Last of its timber, they couldn't sell 'em;
 Never an axe had seen their chips,
 And the wedges flew from between their lips,
 Their blunt ends frizzled like celery-tips;
 Step and prop-iron, bolt and screw,
 Spring, tire, axle, and linchpin too,
 Steel of the finest, bright and blue;
 Thorough-brace bison-skin, thick and wide;
 Boot, top, dasher, from tough old hide,
 Found in the pit when the tanner died.
 That was the way he 'put her through.'
 'There!' said the Deacon, 'naow she'll dew!'
 Do! I tell you, I rather guess
 She was a wonder, and nothing less!
 Colts grew horses, beards turned gray,
 Deacon and Deaconess dropped away,
 Children and grandchildren, where were they?
 But there stood the stout old one-hoss shay
 As fresh as on Lisbon-earthquake day!"

[TO BE CONTINUED.]

TRANSACTIONS.

CLINICAL SOCIETY OF THE UNIVERSITY OF MICHIGAN.

STATED MEETING, APRIL 5, 1911.

THE PRESIDENT, REUBEN PETERSON, M. D., IN THE CHAIR.
 REPORTED BY JOHN WILLIAM KEATING, M. D., SECRETARY.

READING OF PAPERS.

CAMPHORIC ACID AND ITS RELATION TO THE NIGHT SWEATS OF TUBERCULOSIS.

DOCTOR GEORGE B. ROTH read a paper on this subject. (See page 177.)

DISCUSSION.

DOCTOR GEORGE B. ROTH (closing the discussion): The way the drug has been given is by the mouth in doses of fifteen to thirty grains. Atropin is probably more efficient but produces unpleasant symptoms.

Picrotoxin is an exceedingly toxic drug and the dose cannot be increased without danger of producing other symptoms such as salivation and vomiting. The advantage that camphoric acid possesses is that its stimulant action is confined mainly to the respiratory center; furthermore the dose can be repeated without much danger.

A CASE OF LEAD POISONING.

DOCTOR LUTHER F. WARREN read a paper bearing this title. (See page 179.)

DISCUSSION.

DOCTOR NEAL N. WOOD: Doctor Warren mentioned some of the causes of lead poisoning. I saw an account of lead poisoning in children and infants under five that occurred in Chicago. The source of the poisoning was found to be cheap pop that the children had bought. The physician was struck by the fact that he had within his practice fifteen or twenty children with colic, all of whom had been drinking this pop. He drank a half-dozen bottles, with severe colic resulting; then tests were made and the pop was found to contain lead.

REPORTS OF CASES.

A CASE OF TUBERCULOUS MENINGITIS.

LESLIE H. S. DEWITT, M. D.

Department of Gynecology and Obstetrics.

THE patient, Mrs. S. S., aged thirty-two, an American, housewife, was admitted to the Gynecologic clinic, March 13, 1911.

The family history is negative except for pulmonary tuberculosis on the father's side.

The patient was not very strong as a girl although she had none of the diseases common to childhood. Menstruation began at the age of seventeen. It was established at once. She was always very regular, of the monthly type, flowed one to two days, staining about three napkins. Through the first day she suffered considerably with cramps. Her last period began February 24, 1911. Leucorrheal history negative. She has been married nine years, her husband being in good health. The patient has been pregnant but once, eight years ago. She allowed a criminal abortion to be produced at the end of seven weeks, upon the demand of her mother-in-law. Her recovery was uncomplicated.

The patient enters the hospital because of pain in her lower abdomen and backaches. She dates the beginning of her trouble to about the middle of October, 1910. Her pain is of a dull, heavy character, occasionally very sharp, in both lower abdominal quadrants, especially severe in the right. It has gradually become worse. Any exertion aggravates it and she seeks relief by rest. Her backaches are in the lumbosacral region and the pain is continuous and dull. She has sick headaches over the vertex and in the occipital region. Nearly each day she has had fever, some days with chills. She is much nauseated and has had about six severe vomiting spells lasting from one to two hours. Her bowels are

regular. She thinks she has lost no weight. Her trouble has made her very nervous.

Examination.—The lungs are negative but the right apex is suspicious of old trouble. The heart is also negative except for an accentuated second pulmonic. Abdominal examination shows a distinct rigidity and spasm of the right rectus and tenderness below the umbilicus in the lower right abdominal quadrant.

Pelvic examination shows the external and internal perineum intact, cervix close to the introitus and pointing upward. A distinct nodular mass can be felt in the posterior fornix just beneath the vaginal mucous membrane. Fundus of the uterus probably retroverted. There is an extremely tender inflammatory mass in the right side of the pelvis.

The laboratory findings were as follows: Red blood cells, 4,100,000; white blood cells, 14,600; hemoglobin eighty per cent (Miescher). Systolic blood pressure 130, left arm, lying down (Faught). A voided sample of urine was negative except for a few pus cells.

On March seventeen she was examined under ether and a dilatation and curettage and posterior colpotomy performed. A large amount of very friable curettings were removed from the uterus. On incising the posterior vaginal wall there was an escape of a considerable amount of thin, clear, ascitic fluid. The palpating finger introduced into the incision could feel a granular, roughened surface of the inflammatory appendages and over the fundus distinct nodules of varying size were felt. The diagnosis of tuberculous pelvic peritonitis was made. Microscopically the curettings removed show "numerous areas of caseation necrosis without any definite formation of tubercles but they are probably very young tubercles."

Previous to her operation, the patient each day ran an afternoon temperature, 101° being the highest.

The daily notes following her operation are as follows:

March 17: Day of operation.

March 18: Complained of a severe frontal and occipital headache all day. No relief obtained by heat, cold, or medicine. Temperature rose to 102.3° in late afternoon, pulse 100. Had a very uncomfortable day.

March 19: Headache not so severe. Slightly nauseated. Patient has a frown on her face most of the day and her upper eyelids droop. Very restless, tosses about the bed. Talks a great deal.

March 20: Highest temperature 101° , pulse 108. Has difficulty in talking; she acts stubborn and mean.

March 21: Headache all day. Has but little to say, acts drowsy and listless. Temperature to 103.6° , pulse 124.

March 22: Headache no better. Nothing will relieve it. Nauseated; ate but little; refused her supper. Highest temperature 101.8° .

March 22: Refused all nourishment. Vomited twice during the morning. Headache severe all day.

March 24: One week from operation. Talks considerably and irrationally at times. Repeats a great deal. Seems bewildered, cannot recall

her doctor's or her own name. Will take no nourishment; refuses to have her temperature taken or any attention shown her. Highest temperature 101.4° .

March 25: Slept soundly all last night. Acts stupid today; talks irrationally. Makes wild movements at times. Has complete retention of urine. Catheterization at 6:30 P. M. gives fourteen ounces of slightly turbid urine which upon analysis was negative except for some pus cells. Highest temperature 100.2° .

March 26: Very dull and drowsy; will not answer any questions. Puts her hands to her head and occasionally cries out as if in pain. Physical examination each day has shown nothing.

Today her neck is rigid. No definite König. General hyperesthesia. Refuses to allow anything to be done for her. Highest temperature 101.6° , pulse 96. Catheterization after twelve hours gives thirteen ounces. Analysis shows a faint albumin test, considerable pus.

A lumbar puncture was done during the afternoon. The third lumbar interspace was chosen. The needle easily entered the spinal canal and the fluid, which was clear, came away at a very fast drop. Thirty cubic centimeters were removed. The cell count showed twenty per cubic millimeter. The stained smear of the cells showed about ninety per cent small mononuclears. No organisms were found. Albumin content two and one-quarter, Esback's tube. Noguchi reaction and test for serum albumin positive.

March 27: Very stupid all morning. Will not answer any questions. Transferred to Neural clinic.

March 28: Highest temperature 101.4° . Pulse irregular, rate 86. Patient was very restless nearly all day.

March 29: Highest temperature 100.2° , pulse 90. Patient seemed to be fairly comfortable but was noisy at intervals.

March 30: About the same.

March 31: Involuntary micturition today. Temperature to 101.2° . Complained of the same intense headache. Neck distinctly rigid. Double König.

April 1: Temperature to 101.6° . Slight ptosis of right eyelid; external strabismus of right eye. Will not answer any questions.

April 2: Ptosis of right lid almost complete, slight ptosis of left. Very restless all day, moans continually and picks at bed clothing.

April 4: Patient much worse today. Very restless and dyspneic. Temperature rose to 102.3° , pulse to 148. Expired at midnight. No necropsy. A lumbar puncture done just before death showed a normal pressure, cloudy fluid, 1500 cells per cubic millimeter mostly degenerated leukocytes. Tubercle bacilli found. Noguchi and Nonne-Afelt positive.

DISCUSSION.

DOCTOR NEAL N. WOOD: I think it probable that the tuberculous meningitis existed before the operation. The operation itself was not very severe, being simply a colpotomy and a curettage.

To me the most interesting thing was the condition of the patient that

led us to suspect a possible tuberculous meningitis. At first we thought her peculiar actions due to a hysteric condition. She would not look or talk to anyone, but if someone else did the talking one could observe her casting sly glances all around the room. Whenever she was left alone and the screen pulled closely around her, she would push back the screen so that she could look about the room. Doctor Camp had trouble in getting anything out of her, but if he were to speak to the nurse, then the patient would ask of him: "What did you say?" if she did not understand it. Therefore, we were sure from the very outset that the patient had a marked hysteria. The things that seemed particularly to indicate special investigation such as lumbar puncture were that she had persistent headache that nothing could relieve, that she had to be catheterized on account of retention, and that the temperature and pulse were increased.

DOCTOR EARL L. WARD: The occurrence of cerebral symptoms is interesting. There is a similar case in our clinic at the present time.

The patient came to the hospital with a severe depression, with certain features of negativism. The patient was exposed to tuberculosis about four years ago but for some time previously she had been run down and nervous. She was observed to have a slight temperature and last Saturday she became comatose and her temperature went up to 104° . The condition is interesting since she also shows a tendency towards obstinacy like the other patient.

The idea that the mental condition is a primary one I think is wrong. We had a patient here several years ago who was being treated for pneumonia who suddenly became maniacal and tried to jump out of the window. At the autopsy the patient showed signs of beginning meningitis. The patient we have now is still alive with a temperature of 104° .

ORIGINAL ABSTRACTS.

DERMATOLOGY.

THE BICHEMICAL THEORY OF EHRLICH.

IN Volume LV, Number XXIII, of the *Journal of the American Medical Association*, Louis Hart Marks, M. D., has an article on "Ehrlich's Bichemical Theory, its Conception and Application."

Before taking up an exclusive consideration of "606," Doctor Marks reviews briefly some of the work of Ehrlich during the past seven years. The basic idea has been that a specific chemical affinity exists between specific living cells and specific chemical substances. Following his work on differentiating leukocytes he studied vital staining and demonstrated the selective action of certain substances for different tissues of the body.

Soon after he immunized mice to ricin and abrin. With increasing opportunities he undertook the study of specific chemical therapeutics. He believed that for each specific parasite a specific curative drug must and

could be found. The work was begun with trypanosomes. Trypan-red was found to absolutely cure infected mice with one injection. This was the first time that a living organism was completely sterilized. Continuing the work it has been found that smaller doses caused the disappearance of the trypanosomes from the circulation for periods of time directly proportioned to the size of the dose, while repeated small doses produced apparent immunity to action.

Similar experiments went to show that in other parasitic diseases immunization effects could be produced by repeated small doses, or gradually increased doses.

The demonstration that these parasites could so readily become resistant to different chemical substances led to the logical conclusion that in order permanently to cure a parasitic disease it is necessary to destroy in the shortest time every single parasite with one injection of a drug, as it can readily be seen that if complete sterilization is not achieved, and frequently repeated doses are necessary, the substance would soon lose all effect, and the person or animal treated would then be worse off than before the treatment was begun.

This, then, became Ehrlich's aim, to produce a substance which was so specific for given parasites that they would be completely destroyed by one injection.

It was early discovered that substances active in vitro were inactive in test-tubes and vice versa. These two phenomena Ehrlich designated as paradoxical or indirect action. This indirect action he claims to be due to one of the following conditions: (1) That the substance inactive outside the body is so changed in the body that it becomes active. (2) That the drug causes an inhibition of certain functions of the parasite which have to do with its reproduction or the destruction of some of its constituent parts.

This brings us to the consideration of the several methods by which specific substances can bring about a lasting cure. Either the drug destroys all the parasites within the body by its direct and specific action, or the curative substance need kill only a certain number of the parasites, when the remaining ones will be destroyed by the rapidly formed antibodies, as has been shown by Wassermann, Schilling, and Mesnil.

Regarding results obtained with "606" in the treatment of syphilis, twenty-thousand doses have been given out to selected physicians throughout the world, from whom about six thousand records have been obtained.

The great majority of investigators were astounded at the completeness and rapidity of its action. Some unfortunate results were reported, largely traceable to faulty technic at some stage. Ehrlich has never claimed the drug to be harmless. In fact, he states that "A drug will never be found which will completely destroy all the parasites in the body with one or two injections that will be without its dangers."

The entire process of manufacture and preparation of the drug is a difficult one. It is kept in glass tubes and must be prepared for use only at the bedside. Calculating the dose from the animal dose, the human should receive five to six grams at one injection. The doses now in use are small 0.3 to 0.8 of a gram, usually varying as to whether it be used intravenously or subcutaneously or intramuscularly.

It may be administered in suspension or solution. The intravenous method is painless. The injection is painful. Iverson first gives an intravenous injection of 0.5 of a gram and follows it in two days with an intra-

muscular injection of a suspension. Injury to the eyes has not been reported. Relapses following small doses were reported when second injections of increased dosage caused the symptoms to disappear.

The rapidity of the cures varies. Erosive primaries disappear in four to five days; indurated chancres in eight to twenty days; secondaries disappear rapidly as do throat lesions; tertiaries show astonishing results,—gummas disappear and deep ulcers become clean in a few days.

Whether or no the cure is permanent can only be determined by time, but Marks claims that "606" surpasses any known drug in the treatment of syphilis on account of the rapidity and apparent thoroughness of action.

It will never be a drug that can be generally used in office practice and the greatest caution will have to be observed by those who use it.

J. F. B.

RECENT PUBLICATIONS.

REVIEWS.

TRUTHS: TALKS WITH A BOY CONCERNING HIMSELF.

THIS little book takes up the subject of reproduction and sexual matters, with particular reference as to how the subject should be presented to a boy. The author's idea is that the subject of reproduction should be definitely taught the boy, and she condemns the "let alone" policy whereby boys derive their first knowledge of matters sexual through some obscene conversation with a friend or playmate. The author considers that the proper person to teach the boy is the father, and to the uninitiated father this little book is intended to be a guide as to how the subject may be presented. The author considers that the afflictions caused by venereal trouble would be lessened if the boys were properly instructed.

It is the author's idea that the child should first be taught the process of reproduction as occurring in plant life. Various animals representing different stages of evolution are then suggested. The fish and frog are given as examples where fertilization occurs outside of the body. The process of reproduction in the chicken is described to demonstrate fertilization inside of the body, but with development outside of the body. Thus by degrees the human is approached, and the boy is frankly told of the process as occurring in man. A chapter on "Vendors of Fake Advice" is intended to warn the boy and prevent him from falling into the hands of unscrupulous persons who would make capital out of his ignorance. A chapter on "Wild Oats" describes the venereal peril.

The subject outlined to be thus presented to the boy, presupposes an intelligent and conscientious father who is a frequent companion of his son. Given this to begin with there is no doubt as to the advisability of such parental teaching. A little volume like this will help many an earnest father to present what to him is a difficult subject.

*By E. B. Lowry, M. D. Forbes & Company, Chicago, 1911. Price 50 cents.

The Physician and Surgeon

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VOLUME XXXIII.

JULY, 1911.

NUMBER VII

ORIGINAL ARTICLES.

MEMOIRS.

PSYCHOANALYSIS AND SOCIAL SERVICE.*

LOUVILLE E. EMERSON, PH. D.

FORMERLY INSTRUCTOR IN PHILOSOPHY AT THE UNIVERSITY OF MICHIGAN.

It is with no small amount of trepidation that I face this audience. In the presence of doctors I am accustomed to listen, not talk, and when your president asked me to give a paper on psychoanalysis before this society, I felt afraid, at first, to accept such an honor, as I have been working with this stupendous subject so short a time I hardly feel competent. But I feel under deep obligation to doctors, and so I welcomed the opportunity as one where I could express openly both my appreciation of my good fortune in being associated with doctors, as well as the hope that what I may have to say might be of some service. To Doctor Barrett, especially, I wish to express my gratitude, not only for the unusual opportunities he has given me for research in his Psychological Laboratory, but also for his many helpful suggestions and his interest in the work.

If time permitted I should like well to give the history and a review of the literature of psychoanalysis. But that is impossible. Freud himself has published seven or more volumes. Already there are three large volumes of a *Jahrbuch* comprising more than one thousand three hundred pages, and thirty-three titles. And in his article on the English and American collateral literature, Ernest Jones cites one hundred and ninety-two titles. If we add to this the work of Jung in *Association Studies*, the whole swells "wisibly," as Sammy Weller would say. And as I write, an advance copy of the June-July number of the *Journal of Abnormal Psychology* comes into my hands with an article by Jones on the pathology of morbid anxiety, quoting from more than fifty different

*Read by invitation before the Clinical Society of the University of Michigan, April 21, 1911.

men, famous in psychiatry. Do not understand by this show of apparent learning that I pretend to being a psychiatrist. I do not. All I wish to suggest by these citations is the large field under cultivation by psychoanalysis, and the great crop of literature already harvested. Obviously I could use all my time merely reading titles. But I shall follow no such unprofitable course. I will confine myself to reporting on two of my own cases. The first is that of Mr. A. B. L.

Mr. L., who is a florist and celery grower, was admitted to the State Psychopathic Hospital, Saturday, March 4, 1911. There was no history given of insanity in the family. The physical examination was negative, except for scars seen on each of the corneas. The neurologic examination was negative except he is unable to read newspaper type further than six or eight inches, and unable to smell any of the test odors. The patient was referred to the ophthalmologic department and the following report returned: Leukoma; advise iridectomy. He was supposed to be suffering from paranoid ideas, and from delusions concerning a political campaign in which he had shown abnormal interest and activity.

For some time I shrank from undertaking to analyse this case. Two reasons were at the bottom of my feeling. I thought it was possibly paranoia, and I was averse to working with a paranoiac, fearing the hopelessness of the situation. But my very fear itself I felt should be overcome, and so, finally, I put my feelings aside and went to work. As the second section of my paper will concern itself more properly with psychoanalysis according to the Freudian technic, I shall confine myself largely, in this part, to the technic developed by Jung.*

A little preliminary investigation showed that there was a great deal of trouble existing between the patient and his wife. The second day of the analysis Mr. L. said: "May I tell you about a 'family skeleton'?" My wife told me not to tell anything about that when she was here last Monday, but I made no promises. I married my wife for an heir. I drank and was brought up to see no evil in it; she was brought up to see a great deal of evil in it. For five years after marriage she refused to bear me a child." Her mother and sister were nurses and she knew how to prevent conception. His wife was also very averse to sexual intercourse at any time. He went on to say that in order to get his wife to bear him a child he finally agreed to go to Windsor and take the gold cure, and promised to refrain from drinking for two years. This he did, though at first he was afraid, because it was common belief around saloons that the cure made a man crazy. Therefore, before taking it he got the advice of Doctor Burr, at Pontiac, and Doctor Casgrain, at Windsor.

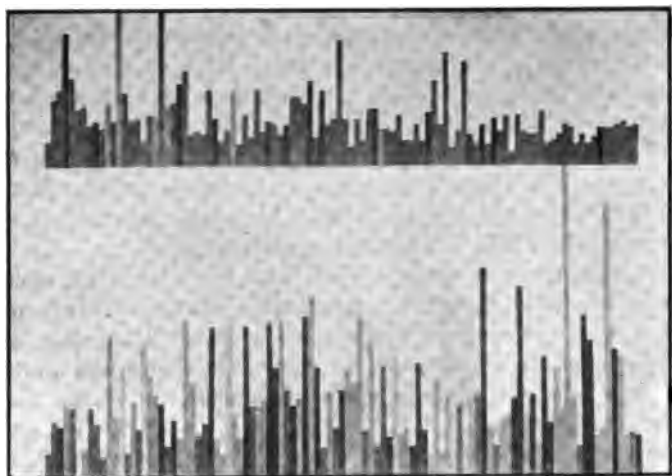
The first series of associations, some of the results of which are shown in this chart (Chart I), discloses very well the existence of a conjugal complex. Over twenty-three per cent of the associations refer to his wife. For instance, the word "rich" (30), brought the association "I" in 6.8 seconds. This referred to his wife's loss of affection symbolically expressed in the following poem which he quoted afterwards:

*"Diagnostische Associationstudien," Barth, Leipzig; also *American Journal of Psychiatry*, April, 1910.



March 29, 1911.

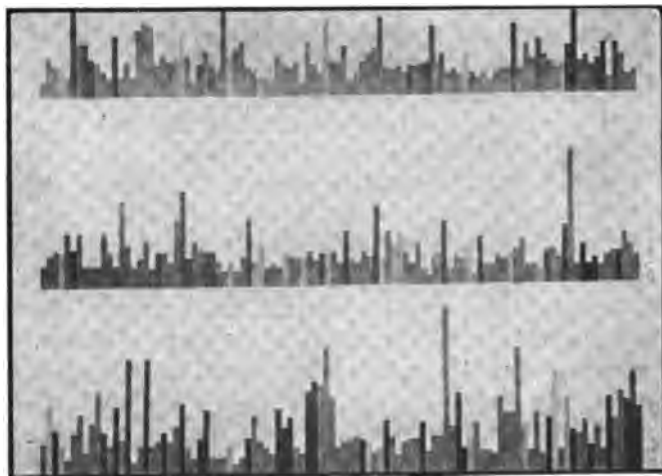
CHART I.



April 13, 1911.

April 11, 1911.

CHARTS II and III.



April 17, 1911. April 15, 1911. April 14, 1911.

CHARTS IV, V, and VI.

"Rich—I had many lovers,
 Poor—have none.
 So surely want extinguishes the flame.
 And she who called me once her pretty one, her Adonis,
 Now inquires my name."

To the stimulus words "to take care" (56), he answered "of my family" in 12.6 seconds, and to "dead" (5), he answered "mother," but only after 20.8 seconds. But his mother has been dead since he was six years old. What he was undoubtedly trying to conceal here was the thought that he wished his wife were dead. He felt unjustly treated in being committed to the hospital, and yet he was afraid lest his mind might be really wrong as is shown in the two following consecutive associations: "head" (1), "brain" in 1.4 seconds, and "green" (2), I didn't catch that word,—green? 'tis," in 12.2 seconds. This is an instance of the feeling aroused by a word interfering with perception; shown by his not understanding the next stimulus word. The word "'tis," is one in a long poem of sixty-three verses, which he wrote out for me from memory. The poem symbolized to him his belief that every man has a right to his own opinion, and that he came down here to get a square deal, as he said, as to his mental ability, something which he had been unable to get at home. The next longest association time in this series, 17.8 seconds (6), referred to the same complex, symbolically expressed in the same poem. His associations to "to cook" (7), and to "tree" (31), and "despise" (44), all refer to his wife, but I will not multiply examples.

Analysis of the series as a whole show Mr. L. to be of the definition type of mankind, with a greatly exaggerated idea of his own mental ability. Forty-two per cent of his associations were definitions, though only eight per cent were judgments of value. It shows also superficial associations, and, that he tends to think in symbols, the lowest form of thought * as Pelletier says:

The most interesting aspect of these association tests, however, begins with this next series, taken April 11. He went on: "My wife has been twice to get a divorce from me, in her fits of passion. My brother wants us to have a separation, not a divorce, we both of us do not believe in divorce." After expressing himself energetically, he said: "Now I feel better, at least, not so badly." He then said: "They asked me in the eye clinic whether my wife had ever had an abortion and I said 'No,' but she did. She came over here about six months after we were married and an old trained nurse performed an abortion." This was all I had time to hear that morning, as it was then noon.

In the afternoon I asked him exactly what occurred just previous to his political campaign. He answered: "My wife came over to Ann Arbor Friday night, and came back Monday morning, and I surmised she bought some stuff and drugged me all that week, in my food. I suspected it, I scarcely thought she was equal to it, but I suspected it. My mind flashed to that abortion. She had done exactly the same thing then. She came

*"L'Association des idées dans la manic aigue dans la débilité mentale." Thèse de Paris, 1903, page 129. Quoted by Jung in "The Psychology of Dementia Praecox," page 13.

to Ann Arbor, and I never knew anything about it till she asked me to bury—the consequences. I never felt so bad in my life. And during this week when my boy came up and imperiously fed me my food, forced me to take it in a way, the story of Esau and Jacob flashed into my mind. Though I love my boy, I thought, maybe you are stealing your brother's birthright. I felt like a murderer when I buried that baby. She said it wasn't a boy, but I had a feeling that it was a boy."

Tuesday morning, April 11, I tried to get a second association test but was unable to do so. Mr. L. was so sick, was in such pain, and was so nauseated, that I could do no more than talk a little while with him. He said that his brother David had been here to see him the day before, and had told him that his wife was trying to get herself appointed his guardian, and get control of his property. He had been unable to sleep all night. He said his mind ran and ran over everything. Before he had said hardly anything he had to go out twice to vomit. He was continually nauseated and trying to vomit. He was undoubtedly in very great distress. In a passing moment of relative calm, he said: "I want to go over our past stuff. I gave you evasive answers. I gave you truthful answers as far as they go, but I was sparring for time."

Finding Mr. L. in such an open frame of mind I thought I could now trust to his telling me truly as to what really passed in his mind during an association test. I think I was not mistaken. The second association series was taken this same Tuesday afternoon, and the result you see in this chart. There is the same large number of "complex indicators." And it is obvious that he can hardly control himself to give but one word. The forty-five yellow strips show his reactions to be many words instead of one.* This means that he is laboring under great excitement. The reason you already know. It was now so late I was obliged to postpone the reproduction experiment till the following day, which accounts for some of the mistakes shown, indicated by the red strips. Now was the time to get truthful introspections. To the stimulus word "needle" (25), he replied, "sew with" after three seconds. When I asked him what he was thinking of during the three seconds he answered, "I was wondering whether you were trying to find out if I were brave enough to stand having the needle run into my back, like those fellows up-stairs." He was referring, of course, to the puncturing made for the cerebrospinal fluid. Several other associations referred to this fear. To the stimulus word "month" (97), he replied, "many a month" in eight seconds. What passed in his mind, he said, was this: "I thought I might get mad enough to divorce my wife, or allow her to have her wish. She has applied to Dan Davis twice in a fit of anger." "Wild" (74), brought the association "I'm trying to think of a word—wildwood!" This took 13.6 seconds. His introspective account was "I didn't want to bring up my wife again. The time was simply taken up in trying to evade subjects painful and unnecessary." To the stimulus word "to kiss" (88), he responded with

*In the plate these could not be reproduced in color. They are numbers 4, 7, 11, 12, 15, 18, 19, 23, 24, 25, 29, 30, 32, 33, 36, 37, 40, 43, 45, 48, 51, 52, 53, 55, 60, 61, 65, 66, 67, 68, 72, 75, 77, 78, 81, 83, 86, 87, 88, 89, 93, 94, 95, 97, 98.

"sanitary kiss, a soul kiss. I couldn't think of sanitary." He took twenty seconds. When I asked him as to what he was thinking of during all that time, he said, "I was thinking of the way my wife put her cheek around for me to kiss when she left me here." He had told me the day before that when he kissed his wife good-bye, when he first came to the hospital, she turned her head away, and he thought, "Dearie, you need this treatment ten times more than I do, but I won't put you here till I've done all I can." He had written a letter to his wife, some time previously, which he had asked me to read, in which he agreed to let bygones be bygones, if his wife would come down here and take the treatment. He says that he came to be tested as to his sanity, and at first intended not to let anything out about his family. Then David came, and now since he thinks his wife has laid this as a plan to get possession of his property, he is quite ready to unburden his soul. There is no question as to there being ill will between his brother and his wife, because when she was here she told me that his brother never had done anything to help her husband.

(1) head	(26) blue	(51) frog	(76) to wash
(2) green	(27) lamp	(52) to part	(77) cow
(3) water	(28) to sin	(53) hunger	(78) friend
(4) to sing	(29) bread	(54) white	(79) luck
(5) dead	(30) rich	(55) child	(80) lie
(6) long	(31) tree	(56) to take care	(81) deportment
(7) ship	(32) to prick	(57) lead pencil	(82) narrow
(8) to pay	(33) pity	(58) sad	(83) brother
(9) window	(34) yellow	(59) plum	(84) to fear
(10) friendly	(35) mountain	(60) to marry	(85) mother
(11) to cook	(36) to die	(61) house	(86) false
(12) to ask	(37) salt	(62) dear	(87) anxiety
(13) cold	(38) new	(63) glass	(88) to kiss
(14) stem	(39) custom	(64) to quarrel	(89) bride
(15) to dance	(40) to pray	(65) fur	(90) pure
(16) village	(41) money	(66) big	(91) door
(17) lake	(42) foolish	(67) carrot	(92) to choose
(18) sick	(43) pamphlet	(68) to paint	(93) hay
(19) pride	(44) despise	(69) part	(94) contented
(20) to eat	(45) finger	(70) gold	(95) ridicule
(21) ink	(46) expensive	(71) flower	(96) to sleep
(22) angry	(47) bird	(72) to beat	(97) month
(23) needle	(48) to fall	(73) box	(98) nice
(24) to swim	(49) book	(74) wild	(99) woman
(25) voyage	(50) unjust	(75) family	(100) to abuse

MOST PROBABLE TIME.

March 29—42	def. 8	val. 23	wife.....	3.4 seconds.
April 11—30	8	33		5.2
April 13—15	3	22		2.6
April 14—17	5	23		2.6
April 15—10	3	22		1.8
April 17—9	3	18	in per cent.....	2

The remaining series of associations show the result of training. I instructed him still more carefully as to the conditions of the experiment, and you see a part of the result. His time of association is lowered, and he makes far fewer mistakes. Besides lengthened reaction times, emotion

*NOTE.—All the association tests were made using the same list of words. This list, which is appended, was taken from Jung, *American Journal of Psychiatry*, April, 1910.

distracts the attention and superficial associations spring up, with the shorter times. In the last association test, made the day he went home, he gave the following: "Family" (75), "ties," 1.4 seconds, "to wash" (76), "clean," .8 seconds, "cow" (77), "ard," 1.4 seconds, "friend" (78), "ly," 1.6 seconds, "luck" (79), "less," 1.6 seconds, "lie" (80), "low," 4.4 seconds. Here we have not only motor-speech combinations, but also word completion. The expression "cow-ard" is especially significant. He has been laboring under a great deal of fear.

Mr. L. has not led a blameless life sexually. Previous to marriage he had had intercourse with women. He denies ever having contracted any disease. His acquaintance with the woman who afterwards became his wife, began, he says, through his befriending her and her sister, because of some slighting remarks made of them by a couple of fast young men. He said his wife was very modest, *very* modest; but analysis developed the fact that he had had intimate relations with her regularly for about a year and a half, before marriage. For her protection he wore a "French safe." Even so, she did not want to marry him, he said, but wanted him to marry her sister and let her board with them. This early intercourse has never been mentioned but once since marriage. Then his wife said: "It is funny, isn't it, that we never speak of those times." He said: "We have been trying to forget it." The analysis of a dream he had the night of April 11 disclosed the fact that four years ago he had sexual relations with a young woman he employed in his flower shop. He was careful, however, not to impregnate her, practicing coitus interruptus. The dream showed that if he could dispose of his wife he would now like to have this woman come back and take charge of his shop again.

Mr. L. showed a very puzzling mixture of mental traits. He had a rather extensive verbal memory for phrases and poems. I have quite an assortment of poems and verses he wrote out for me, and I am sure it is not a tithe of what he was ready to produce. He has considerable ability of a mathematic sort. He also showed some sagacity in choosing land for raising his prize melons on. This is how he did it. Visiting his sister, who lives near Niagara, he found the country thereabouts ideal for fruit growing. Studying on the map the geographic conditions of that district, and looking for similar conditions, he decided that northern Ohio, near Gypsum, would be such a place. Going there on a Sunday excursion he found his expectations realized, and laid plans for an experimental melon patch. In his conduct of his home business he said he followed the advice of the grocers and specialized in celery, finally getting unusually good concessions as to prices from the grocers. The way he created his melon is an illustration of his ability along this line. He took different melons and noted their bad points, and good points, and crossed their seed in such manner that bad points were eliminated and good points reinforced, thus finally getting a melon that is rated very high in Ferry's catalogues. All these things, and others, show his shrewdness.

On the other hand, there is all this difficulty with his wife; there is his plunging into extraordinary political activity; there are bad business ventures as well as good ones; there is a general mix-up. I endeavored to

patch things up with him about his wife, and, while here, both what he said and his associations, seemed to show at least partial success. But as I write, I learn, that since going home he has instituted proceedings for divorce. This suggests that he is of a litigious type, always seeking satisfaction in the courts. For the man himself, the help resulting from a thoroughgoing analysis is slight, if any. He is what he is, temperamentally, and suggestion has but little effect.

This rather discouraging picture of a personality shows pretty plainly some of the difficulties and limitations of psychotherapy. It shows equally plainly that the only possibility of prophylaxis lies, in the widest sense, in education. What he might have been with a good education and social opportunity, and training, it is of course impossible to say. But it seems to me that it is possible, if not probable, that with adequate opportunities he would have been a very valuable member of society. He has been almost blind since he was three; had very little schooling; came over here from England when fifteen, and had to fight for himself ever since. At least he has done this; starting with nothing, and in a strange land, he has now a business worth from eight to ten thousand dollars, at a guess. The case has much of interest, psychologically and socially, but I have no time now to develop it further. I must hasten to the second part of my paper.

* * *

The case I have now to present is unambiguous. It is a "mixed" psychoneurosis, following the Freudian terminology, characterized by hallucinations, somnambulisms, and slight hysteric convulsions.

Mrs. I. L. was admitted to the hospital, April 3, 1911. There was no history given of insanity in the family, but during my analysis I found that one of her father's distant cousins had been insane on religion, though otherwise all right. The physical examination shows a small, well-developed woman of four feet nine inches. Otherwise the examination is negative. At the neurologic examination she said that she had had trouble with both ovaries. The examination was negative except pin-pricks were felt better on the entire right side of the body except the left which was more sensitive than the right all the way from the hip to the foot. All the reflexes were present and normal except the pharyngeal, which was gone.

The patient was brought to the hospital because of hallucinations, delusions, et cetera. She said Mrs. L. was dead and that she was Sister Mary. She began wandering about the town, too, at times, apparently unconscious as to where she was or where she was going. She evinced an abnormal antipathy to her husband, and said she no longer loved her daughter, a child four years old.

Following Freud and Jung,* I sought and found that the proximate cause of the psychosis was the husband and his family. The patient tried several times to get away from her husband, but was unsuccessful. Once she had the money all saved but he took it away from her and made her stay. From a child she had always abhorred the thought of sexual inter-

**American Journal of Psychiatry*, April, 1910, page 249.

course. And after her experiences of the first two weeks of married life, she simply loathed it. Her husband gave her no time to get adjusted to the new relation but attempted coitus the first night. Then he had intercourse with her mornings and afternoons and two or three times every night, till she so dreaded to see him come home that she would run away whenever she could. She never had normal intercourse, always remaining cold. She used douches to prevent conception, and was especially incensed at her first pregnancy, as she had just about completed preparations for leaving her husband and that prevented it. She tried to get her husband to sanction an abortion, but he would not hear of it. Then she told him that she would go to a doctor anyway, and have an abortion, if he did not move away from his family, with whom they had lived the first two years of their married life. Her husband now got her a house, and here a girl was born, four years ago. She had a miscarriage a year and a half ago. Her husband had intercourse with her during pregnancy.

The first hallucination occurred last Fall. She had wanted to go home for the summer to her people in Maine, but her husband refused to allow it. She said he knew very well that she never would have come back. She said that her husband planned to go to his folks for Thanksgiving. She refused to go, but finally did. This was after the hallucinations of coffins. At first it was only a shadow that looked like a coffin, then it kept coming back, and she saw a coffin even when she had a friend in with her to keep her company. They were always closed and she was mortally afraid lest they would open sometime and she would see who was in them. They were big coffins, big enough for two. And twice she saw a white coffin. The last coffin she saw was a white one. Then the coffins stopped coming and once after that she heard violent sobbing. It seemed as though the room were full of people sobbing as though their hearts were breaking. They seemed to be sitting on the chairs and she had to push them off in order to sit down herself.

To those familiar with the Freudian psychology it is clear that these hallucinations were the expression of hidden wishes.* The patient has said that she wished herself, her baby, and her husband dead. The coffins were the dream-like expression of that wish. As for the sobbing, it too was the expression of a repressed wish. With a New Englander's training in repression, she had made up her mind that she simply would not cry, but the desire was so strong, it caused an hallucination.

The patient had one other hallucination. She thought she saw a man standing in her sitting-room as she passed the pantry door. She was busy in the kitchen at the time and told him to sit down for a moment and she would soon be in and see him. When she went there was no one there. This was a very clear visual hallucination. She saw that he had on a black overcoat, with fur collar, and his hat pulled down over his eyes so she could not see who it was.

Free association on the fur collar brought out the following facts: On the way home from the visit to the husband's people the Thanksgiving before, her husband left her in the station quite a while and went

*See FREUD: Paper on "Hysteria and other Psychoneuroses," page 74.

up town. While waiting she saw a traveling man go into a telephone booth and heard him call up some one. Pretty soon a woman came and as it was a small station she could hear what they said, especially as they took no pains to lower their voices. They were carrying on a mild flirtation. When her husband returned she asked him if that would be the way he would act if he were a traveling man.

Seeking for a wish which the hallucination might possibly be the expression of, I asked her if she had not thought that if she had only let her husband go traveling as he had wanted to do, after he lost his money, that then perhaps he would have got intimate with some woman and then she could have got a divorce. She said: "Yes, I told him so. I wished it right out loud, but that was afterwards." Naturally, since with the verbal expression of the wish the necessity for an hallucinatory expression vanishes.

The explanation of the somnambulisms is equally clear. The desire to walk, was the expression of the desire to get away from it all, to get away from herself.

She was in a curiously double state of mind. She wanted to die, and yet did not want to die. This is shown by her taking a drop or two extra of aconite, just to see what the result would be. And she said she begged Doctor Abbott to leave a bottle of chloroform with her. She knew, of course, that he would not do it.

But the problems of this young woman's case have by no means been solved as yet. (1) Why did she hate the thought of intercourse? (2) Why did she feel so cold sexually? After all, her husband's excesses were committed some six years ago, and ever since her baby was born he has been quite decent, she says. But she hates it. She hates the whole thing. Words strong enough to express her abhorrence were hard for her to find. And she really does love her husband. She says nobody could have been kinder than he has been, especially since she has been so sick. The source of her feeling must be sought further.

"I wish you wouldn't write everything down," she said one morning. "I am afraid I've got to tell you something, and I don't want to. Yesterday I worried myself into a sick headache thinking about it, and I had to have a sleeping powder last night. This morning I've been working as hard as I could, till you came. It isn't anything I've done, but I'm afraid I'll have to tell you something or else you won't understand. It's troubled me ever since I was old enough to know anything."

The story she told me, with tears, was this: When she was about six, she was playing in the attic, and rummaging in an old trunk came on a folded paper that turned out to be her mother's marriage certificate. She read that her mother was married in October and knowing that her birthday was in December she thought, "Well, they found me quick." Afterwards, when she knew what it meant, she felt terribly disgraced, and was deeply angry at her father and mother. This she concealed, but from that time she dated her disobedience, and also the impossibility she found of confiding in her mother. This feeling was also increased by the fact that when she was about four she and a little boy visitor exhibited them-

selves to each other and she said: "Let's show mamma." They did, and got a terrible whipping.

While telling this she cried, silently, and then said she felt better. She went on: "I never cared to stay at home much. I think that had something to do with my always wanting to do something. I just had to be on the go all the time. Oh, dear, I didn't see why I couldn't have died."

Here, then, we see the result of a personally bitter secret, a sexual secret, permeating the psyche of a hypersensitive girl. It made her hate all things connected with procreation. It made her disobedient. She was an incorrigible flirt, being engaged to a dozen men, more or less, during her early life. She came to Michigan to escape one man whom she had promised to marry, and feared to face, when she had made up her mind to throw him over. She said: "I didn't care. It was revenge more than anything else." She ended by saying: "I couldn't begin to tell you what I've suffered."

Her mother was only fifteen when she was conceived. This may possibly have something to do with her mental make-up, as well as with her short stature.

With this story we see the origin of the patient's aversion to sexuality. She abominated it because her mother's early misstep had brought her shame and the feeling of disgrace. She systematically repressed all her natural instincts in this direction and trained herself to a cold and unnatural insensibility. This meant that she required a man who was, sexually, very exciting, in order to get any feeling at all adequate to being called love. The result was she married a man who began his aggressively active sexual life at about twelve, had relations with a married woman at about fourteen, had gonorrhea at fifteen, and syphilis at sixteen. Since then he has been going wild, he said, till marriage. He declares he has been true to his wife, even refusing a woman who solicited him.

The chances for a happy married life seem very small. For the patient's own protection she was clearly told what was thought to be some of the causes of her illness, and some of the means she must take to prevent relapse. The husband was seen and told as fully as seemed wise, the part he was thought to have played in causing the psychosis, and advised as to his future conduct. What really is the fate of this unfortunate couple, lies on the lap of the gods.

It is evident from these two cases that psychoanalysis and social service work hand in hand. What hope there is of helping, necessarily lies in a clear understanding of the case; what success, depends on skill. There are many relations leading from this work to child psychology, parental training, education, and social work of all sorts. None of these insistent problems have I had time even to touch upon tonight. Let me, in closing simply express my own belief. Psychoanalysis is perhaps the most powerful means available for moral training, as it is certainly the most intimate.

Ann Arbor, 1837 Vinewood Avenue.

THE PRACTICAL VALUE OF THE PSYCHOANALYTIC METHOD IN THE TREATMENT OF THE NEUROSES.*

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SINCE psychotherapy has been accepted as an independent method of treatment of disease, physicians have, with more or less success, revealed the hidden mechanism of the unconscious mind of patients suffering from hysteria and other psychoneuroses and, through the analysis of their psychogenesis, have made their patients understand the various hindrances to normal mental and physical activity and have thereby effected a healing influence.

The conception of the psychic trauma, its effects upon the unconscious and the meaning of the resulting manifestations, the suppressed affections and of "abreaction" became better known through the studies of Freud and Breuer. The psychic trauma was gradually transformed by Freud into the theory of sexual trauma. According to this authority, a sexual experience in childhood, by the suppression of the affectation normally connected with it, has a harmful influence, because the affectation is forced out of the wide-awake consciousness and is ever ready on any occasion to present itself to the conscious mind as a distorted or irrelevant image (psychic symptom), or it is transformed into an abnormal bodily condition, the physical symptoms. We learn from Freud's investigations that the psychogenic symptoms are the outcome of emotional complexes of the imagination caused by a psychic trauma by the conversion of the excitant into abnormal bodily enervations and by transposing of the emotions to indifferent complexes of the imagination. The reason that the traumatic affectation is retained is that the elements of this affectation are incompatible with the remainder of consciousness, consequently, have not found sufficient expression and are therefore suppressed.

According to Freud the specific etiology of hysteria is to be found in sexual traumas of early childhood which must have existed as an actual irritation of the genital organs. However, these traumas are without specific effect in childhood; their real effect unfolds itself during puberty when, by the awakening of the sexual sense, old reminiscences are again revived and determine the symptoms of hysteria. The objection to this theory is not that we doubt the frequent occurrence of sexual traumas in childhood, but their exclusive pathogenic significance for normal children cannot be accepted, nor does it explain why sexual wrongs should produce hysteria in some cases and have no bad effects in others. It leads us no further in this direction and we are obliged to assume an "individual predisposition." The fact evident to every keen observer is that the emotions play a very important etiologic rôle in the formation of hysteric symptoms. This is clearly shown by Freud's experiments published as early as 1893, especially in the expression that hysteric persons suffer largely from emotional complexes of the imagination. While the formation of a theory explaining satisfactorily the origin of hysteria is perhaps

*Read before the Clinical Society of the University of Michigan, April 21, 1911.

still a thing of the distant future, the importance of Freud's investigations lies in the fact that it provides ways and means of solving the mechanism which produces hysteric symptoms.

To bring about a healing effect by the psychoanalytic method one must free the sexual trauma, must "abreact" it. The method of this procedure consists in requesting the patient to relate everything that comes to the mind irrespective of its sense or nonsense. From the related facts, peculiarities of expression, emotions, essentially also from dreams (Freud's *Traumdeutung*), one formulates a conception of the circumstances. In connection with this the association method perfected by Jung is of particular value. One gathers one hundred words, either from the story related by the patient, or independently. These words are known as stimulus words. Before proceeding with the analysis the patient should be comfortably seated or lying in the dorsal position on a lounge. In this way the patient remains free from all external influences and impressions. The object is to avoid all muscular exertion and distraction, thus allowing thorough concentration of attention on the patient's own psychic activities. The stimulus word is spoken by the examiner, and the patient is told to answer the first word suggested to him by the stimulus. The reaction time is measured on a one-fifth second chronometer. After the one hundred words are gone through, the process is repeated without measuring the reaction time. It is soon found that not all stimulus words are reacted to with the same smoothness and facility. There may be a prolonged reaction time, a lack of or faulty reaction, or a failure of reproduction. All these are complex indicators; they show that the stimulus word has touched a complex and thus retarded or totally inhibited the reaction. Jung showed that all apparently adventitious mistakes in the association experiment have a definite reason and, that contrary to the belief of the test person, his answers are not arbitrary, but usually betray his most intimate secrets. The value of this experiment is quite obvious; whereas the patient may refuse to enter into conversation, he is quite willing to answer the first word which the stimulus evokes, as he is totally unaware of its importance and, if the association is correctly interpreted by the examiner, the resistance is invariably broken and the patient readily reveals other associations. To be sure this is not as simple as it seems; above all it requires much experience and a thorough knowledge of normal as well as individual psychology.

The following are some of the associations which revealed the emotional complex in a patient suffering from *astasia-abasia* and from a patient afflicted with *psychasthenia*:

STIMULUS WORD	REACTION	TIME	REPRODUCTION
(1) To jump.....	barn.....	15.....	positive
(2) To threaten	kill.....	20.....	positive

Reaction 1—To jump; barn refers to an instance occurring at the age of six. The patient explained that she frequently played with the neighbor's boy somewhat older than herself, jumping from the hay in the barn. This reaction provoked some emotion as is shown by the reaction time, and

further explanation revealed the nature of the sexual trauma at this early age. Reaction 1 reached the complex in the case of *astasia-abasia*. The jumping from the hay involved largely the lower extremities which undoubtedly caused some fatigue of the legs, this being immediately associated with the sexual trauma, formed a model for the hysteric symptom and explains the emotional complex hidden behind the manifestation of weakness in the lower extremities.

Reaction 2 was the complex indicator in the other patient who, after expressing the word *kill*, gave evidence of fear and became excited, stating: "I see a man standing before me holding a revolver in one hand and a lantern in the other. The same vision I have seen so often in my dreams." When asked if this image resembled any one she knew, she stated: "His features are those of my brother-in-law; the more I look at him, the more I am convinced that it is he." She explained a relationship with her brother-in-law when she was about nine or ten years old resulting in a sexual trauma. She was threatened to be killed if she ever revealed the secret. As she stated, she had many times before seen this mental picture in her dreams but never recognized its significance or its connection with the physical trauma. Reaction 2 revealed the complex in the case of *psychasthenia* in which the chief symptoms were *agoraphobia*, "night terrors," and fear of being shot. The *agoraphobia* was probably dependent upon the fear of being shot and was not caused by a separate complex. The "night terrors" were due to the dream, a distorted psychic presentation of the causative factor of the sexual trauma and the emotional complex. Undoubtedly some time after reaching the age of discretion, an actual psychic process occurred involving the thoughts of how narrowly she had escaped being robbed of her virtue and, as she expressed it, "how awful it would have been if this had actually happened." This explains the vision of the burglar in which she eventually recognized the individual, the causative factor. The threat to be killed if she revealed the secret of the sexual trauma was the basis for the hallucination which formed the emotional complex in the production of the symptoms. Both of these patients were promptly relieved of their ills after "abreaction" of the suppressed.

In dealing with Freud's psychoanalysis we are impressed with the idea that many things might be suggested to the patient and that the reactions might not be reliable, especially in cases of *hysteria*, where untruthfulness might be either conscious or unconscious. By telling the patient that his illness has its root in a definite sexual experience, one gives out an exceedingly strong autosuggestive weapon, and the patient believes he knows where his bodily or mental symptoms originate. One has also made him understand that this knowledge is the healing factor and he can at any time raise himself above these symptoms by this convincing suggestion. This being the case the therapeutic effect does not necessarily depend upon the freeing of suppressed imaginations, but there exists the same possibility for the assumption that the effect of the method rests in its ability to combine the convincing suggestion of being cured, which undoubtedly has an exceedingly soothing, even healing influence upon many

individuals belonging to this class. It should be our determined purpose to avoid direct suggestion or reveal our assumption of the situation surrounding our patients. In the practical application of the psychoanalytic method much has been changed. Everything that is suggestive is omitted. The patients are no longer led by the physician, but the greatest play is given to their ideas. The writer has made it a part of the technic to ask the patients to write the thoughts as they occur successively and spontaneously after giving the patient a starting point at the earliest possible time of life. This can be brought about by reminding the individual of the first school days or the toys which amused the patient during early childhood. This procedure saves a great deal of time for the physician and avoids any suggestion which he might be obliged to make, if the venting of thoughts occurred in his presence. It may be necessary, however, in going over the record to direct the patient's attention to the connections between events. I have succeeded in doing this in an indirect way in the majority of cases through Jung's association method, as was shown in the cases presented in this paper.

There are still so many important objections to Freud's psychoanalysis, that I cannot recommend it as a universal method. It is a question whether other methods requiring less expenditure of time and energy have not effected equally favorable results in the majority of cases. It may, however, be resourceful in the obstinate case where other methods have failed. Patients selected for this form of treatment must be fairly intelligent, as it is not only necessary to find the causative factor (psychic trauma, but also to associate it with the presenting symptoms to form a complete complex which must be comprehensible to the patient. We must succeed in bringing into the patient's consciousness all false connections of the morbid fancies produced by complexes and thereby solve them, so that the patient gradually gets an insight into the form of disturbance, takes an objective view of the complex and sees things as they are and not as they seem. This, of course, changes the entire thinking and feeling of the patient, so that the personality will gradually free itself from the compulsion of the complexes and take an independent position in relation to them. This becomes very apparent and is expressed very clearly in the patient's actions and finally becomes evident in the therapeutic results. In tracing the psychic trauma one invariably comes to sexual experiences of childhood, which is not the result of suggestion when the technic of this method is correct. This does not direct the attention to the sexual region nor call forth sexual ideas, as is suggested by some and offered as a serious objection to this method. The examiner's explanation of the emotional complex is not offered until the sexual trauma is voluntarily revealed by the patient. This is so conspicuous in the results of this method of treatment that one is led to believe that the sexual is born with us and begins to manifest itself in infancy.

In the results of the psychoanalytic method of treatment in the cases related in this paper we are again reminded of the fact that every symptom was the expression of a former mental occurrence; that the repression of the unconscious is at the basis of the dream as well as the psychic

and physical symptoms; that the dream is a perfect psychologic mechanism and is the product of the unconscious, and therefore is the easiest access to the exploration of the psychogenesis of the neurotic.

In conclusion, let me say that this method of treatment, as other psychotherapeutic measures, has its individual characteristics, and success is dependent upon the relation of suitable cases. Whoever has the tact and a clear conception of individual psychology will very quickly determine with what psychotherapeutic measures he can reach his goal in the safest way.

Ann Arbor, 341 Liberty Street East.

RESEARCHES IN NERVOUS ANATOMY.*

GEORGE L. STREETER, M. D.

PROFESSOR OF ANATOMY AND DIRECTOR OF THE ANATOMICAL LABORATORY AT THE UNIVERSITY OF MICHIGAN.

ORDINARILY research work follows along haphazard lines. The character of the problem undertaken by the individual worker is determined by chance and impulse, or perhaps by the material that happens to be available, or is the result of an idea developed accidentally? Where several workers are grouped in one laboratory, except in laboratories founded for specific investigations, the rule is that the subjects being investigated concern widely varying topics which do not directly concern or help one another. In a given laboratory the subjects rapidly change from year to year and the material and apparatus of a few years before are put aside and are forgotten.

This is doubtless as it should be, and some of the laboratories that have been productive of our best work are of this kind. The inauguration of "efficiency" methods in them might prove a serious damper to the individuality and spontaneity of the laboratory personnel. It is undoubtedly essential to the originality and effectiveness of the investigator that he should be given complete independence and freedom to follow where his imagination and judgment lead him. Originality is a precious quality and we can ill afford to have it hampered by the bondage of rules and regulations or by a cold inelastic plan.

On the other hand is there not such a thing as "efficiency" in the management of the resources of a laboratory? While trained investigators should have free rein, is it not possible to coördinate the work of beginners so that their work will fit into an extended plan, according to which isolated investigations relate to one another and when all of them are brought together they form a uniform research extending a long way in one direction? It is with regard to such a plan that I am taking advantage of this opportunity to briefly mention some work that is in progress in this laboratory.

In our case the general investigation that has been undertaken is the anatomy of the central nervous system of the opossum. The brain of this particular animal was chosen for the investigation because, in the first

*Read before the Clinical Society of the University of Michigan, May 17, 1911.

place, practically nothing has ever been done with it, so that it is a virgin field, and inasmuch as the opossum is found only in this country it is only proper that this field should be explored by American investigators. In the second place, it is one of the simplest of the mammalian types. The only lower forms of living mammals known are the echidna and ornithorhynchus, both monotremes, which are rare and difficult to obtain, being confined to Australasia. It will be remembered that these animals have no placenta but lay eggs which are hatched outside of the body, as in the case of birds and reptiles. The opossum, our only American marsupial, is also an aplacental animal and its embryo though undergoing part of its development within the body of the mother is born prematurely and completes its development outside, receiving its supplementary nourishment from the nipple of its mother. Thus we are dealing with a form that represents a very early stage in our evolution. As might be expected, the brain of this primitive mammalian is correspondingly simple. The cerebral cortex and its associated structures present a minimum amount of complexity, the corpus callosum in fact being entirely absent. Furthermore not only its simplicity but also its small size greatly facilitates the preparation, manipulation, and study of the material and this advantage will be fully appreciated by anyone who has experienced the mechanical difficulties involved in working with adult human material. The last essential to a problem of this character is that sufficient material should be available, so that it may be used freely for gross dissection, for all kinds of microscopic procedures and for experimental studies if need be. Adult opossums can be rather easily obtained during the fall and early winter in New Jersey, Pennsylvania, southern Ohio, and Indiana and to the south of these states. We have been able through the courtesy of the Wistar Institute and Professor Soghill of Granville, Ohio, to obtain a supply of living specimens abundant for our purpose. The only disadvantage of using the opossum as a type for investigation is the difficulty of obtaining the fetal stages for the study of its development. Material of that kind is gradually being accumulated (Minot Collection, Harvard Medical School), so that this objection will be ultimately removed.

At Ann Arbor there are in addition to the teaching staff always some students who willingly take advantage of their vacant periods to engage in advanced laboratory work. As a rule, they can give only limited time, and consequently if their interest and energy is to be taken advantage of they must be given a definite and restricted piece of work. Furthermore, the character of the work should be adaptable to various kinds of talent and training. The problem we have undertaken is broad enough to meet these requirements. It lends itself to subdivision to any desired degree and also offers a considerable variation in the manner in which it may be approached.

Where a group of workers are thus working under one general plan, if one of them for some reason is forced to stop his work while it is still in an unfinished state, whatever he may have finished can be utilized by the other workers. We have therefore taken care that all records and drawings, all preparations and all finished or unfinished reconstructions

should be accurately labeled and preserved for the use of subsequent workers and thus no work is lost even though it is left incomplete.

It is not the purpose of this communication to give the details of the results thus far accomplished. It may be mentioned, however, that we have now completed six satisfactory sets of serial sections cut in different places through the entire brain and stained after the Weigert-Pal method; also one set of serial sections stained after the Cox-Golgi method and several partial series stained with special stains for cell study. A general survey of all the principal tracts and nuclei has been completed and a set of preliminary drawings has been made showing the identified structures as they appear in transverse, horizontal, and sagittal sections with a magnification of either ten or twenty diameters. Wax plate reconstructions have been made showing the general morphology of the different parts of the brain and the arrangement of the ventricular system (made by Doctor Stiles). In addition to the work that has been done on the brain as a whole, the following studies on special topics are already well under way and some of them are about ready for publication: The central acoustic apparatus (Mr. Stokes); volumetric analysis of the subdivisions and the chief nuclei of the entire brain (Mr. Tash); olfactory system and its central connections (Doctor McCotter); nuclei and paths of the hypothalamus (Mr. McCord); form and central connections of the trigeminal nerve (Miss Calhoun); surface topography of the forebrain (Mr. Busby); nuclei of the optic thalamus and their connections (Mr. Loomis).

With the progress thus far made the writer feels justified in reporting this investigation as an instance, in which coöperation has been, and is being, successfully taken advantage of, with benefit to the partaking individuals as well as the investigation itself.

Ann Arbor, 1025 Martin Place.

EULOGY ON OLIVER WENDELL HOLMES, A. M., M. D., LL. D.

WILLIAM LANE LOWDER, B. S., M. D.
TIPTON, INDIANA.

[CONTINUED FROM PAGE 203.]

Doctor Holmes restored sunshine and drove away the lowering clouds by his verse. Gradually the poet drew near the age around which the river winds. His days began to wane and as flowers that close at the set of sun, which he has somewhere so well described. Upon the river bank he lingered, waiting to cross to the beautiful groves beyond, and at length there came to him in ripe old age the realization of the immortal words: "Let us cross over the river and rest under the shade of the trees." Death is only the middle point between two lives—between this and another. And we are sometimes led to believe that the other is so much better, so much brighter in hope, grander in possibility, and more splendid in realities, that it matters *little*—little indeed, when we pass the *middle point*. We may, however, learn a great lesson from the lives of those of our

friends who have gone before, and thus make surest preparation for fit companionship with them, when our time shall come to tread

"The great world's altar stairs,
That slope through darkness up to God."

Immortality! O, listen, man!
A voice within us speaks the *startling words*
"Man, thou shalt never die!" Celestial voices
Hymn it round our souls: *according harps*,
By *angel fingers* touched, when the mild stars
Of morning sang together, sound forth still
The song of our great immortality!
Thick, clustering orbs, and this our fair domain,
The tall, dark mountains, and the deep-toned seas,
Join in this solemn, universal song.

—DANA.

Of all ignominies, an ignominious death must be allowed to be greatest; and yet where is the blasphemer who will presume to defame the death of Socrates! This saint entered the prison with the same countenance, with which he reduced thirty tyrants; and he took off ignominy from the place; for how could it be a prison when Socrates was there? Aristides was led to execution in the same city (Grecian history tells us). All those who met the sad procession, cast their eyes to the ground, and with throbbing hearts bewailed, not the innocent man, but Justice herself, who was *in him* condemned. Yet, there was a *wretch* found (for monsters are sometimes produced in contradiction to the ordinary rules of nature), who spit in his face as he passed along. Aristides wiped his cheek, smiled, turned to the magistrate, and remarked: "Admonish this man not to be so nasty for the future." Consequently, ignominy can take no hold on virtue, for *virtue* is in every condition the same, and challenges the same respect. We applaud the world, when she prospers, and when she falls into adversity, we applaud her. Like the temples of the gods, she is venerable even in her ruins.

"O perfect virtue that dureth long!
Dear growth, that, shaded by the palma,
Abloomed on by the angel's song,
Blooms on in Heaven's eternal calma."

Science—

"Ought to teach us to see the invisible
In Nature as well as the visible:
To picture those operations to our mind's eye
That entirely elude the physical eye—
To see the atoms in motion and in rest
And to follow them into the world of the blest."

—TYNDALL.

Tennyson says:

"The waves that moan along the shore,
The winds that sigh in blowing,
Are sent to teach a mystic lore
Which men are wise in knowing."

Shakespeare says:

"We are but parts of a grand system;
The elements we use are not our own—
The water we drink and the food we eat
Has been used a thousand times before
By the vilest beggar and the lowest worm."

* * * * *

In Nature all is common, no use is base,
Nothing wasted, nothing lost in its race.
These *organs* we so fondly call *our* own
Have with *others* dwelt—to us unknown.

Since our poet died! swift years are past,
In imagination's fancy, since his race was run.
Love counts its epochs not from sun to sun;
But by the heart-throb. Mercilessly fast
Time has swept onward since he looked his last
On life a poet. For him life's sands have run
Silently through their glass, and men have won
And *lost* their domains o'er earth's surface vast
Since he passed away. Ah love and pain
Make their own measure of all things that be.
No clock's slow ticking marks their deathless strain;
The life they own is not the life we see;
Love's single moment is *eternity*:
Eternity—a thought in Shakespeare's brain.

We came out of the *eternity* of the *past* and we enter the *infinity* of the *future* with *no knowledge of either*. For centuries Science with her *magic wand*, has bent o'er the crucible of Truth and fanned the fires of Hope, watching and waiting for some transmutation in Nature's wondrous elements that would solve the secret, so long sought, of human life; while Religion, with her *flaming torch*, fed from the font of Faith, has searched through Revelation's *pages* for knowledge of the "life beyond the grave." The One, in *feeble* terms, asserts "a faltering hope;" the Other, in *spite* of doubts and fears, says: "I Believe." And to the Ever-green—that symbol of immortality—Poetry and Medicine clings.

"A day, a year—what are they but the love
Of vanity? The hour that Saul is dead
Homer is born to sing. One loaf of bread
For him that has a finger on the door
Of Death is food for all his needs, and more.
For every man this clock is air or lead,
And never yet has any moment fled
For him as for his father gone before.

"Our *victories* are measured in the *moon*,
Our *failures* by the *stars* that dim and fall,
Our *sloths* for dreams, and dreams for duty done;
But who can tell what golden afternoon
Life's overwound alarm shall strike the call
Of midnight—at the *setting of the sun*?"

He possessed that polished style which has—

"A thousand graces which no rules can teach,
And which a master-hand alone can reach."

He possessed delicacy—that exquisitely fine faculty of perception and feeling and accordingly threw open to us the innermost feelings of his heart and intellect, and as Father Time but “stains the marble radiance of Eternity;” so Hope itself, at last may find the Unknown Quantities of Time in the Equations of Eternity. Oliver Wendell Holmes passed away to that realm of spirit land, to which he had often looked and wondered, and which await such souls as his in The Great Beyond; and

“Roaming through the boundless, starry sky,
What is now to thee this earthly clod?
At a glance ten thousand suns sweep by,
Whilst thou gazest on the face of God.

“In thy sight the eternal record lies;
Thou dost drink from life’s immortal wells;
Midnight’s mazy mist before thee flies,
And in heavenly day thy spirit dwells.

“Yet beneath thy dazzling victor’s crown,
Thou dost send a parent’s look to us;
At Jehovah’s throne thouallest down
And Jehovah, hearing, answereth us.

“And at last when life’s last drops are wasting,—
Those dew drops which God’s own urn hath given,—
When our souls the pangs of death are tasting;
On our dying bed scatter dew from heaven!

“Let thy cooling palm wave freshly o’er us
Sinking to the dark and silent tomb;
May the awful vales be bright before us
Where the flowers of resurrection bloom.

“Then bloom on, gay tufts of scented roses;
O’er thy grave your sweetest fragrance shed!
And while here his sacred dust reposes,
Silence reign around his lowly bed!”

“Doctor Holmes, honest truth his guide,
And to his dying day
Turned not a finger’s breadth aside
From God’s appointed way.

“Now doth thy *pilgrim pathway* lie
Through meadows sunny-green;
Then didst thou look on death with eye
Unshrinking and serene:

“Then shall the pathway to thy tomb
By frequent feet be trod,
And summer flowers of sweet perfume
Spring from the moistened sod;

“For oft shall *children’s children*, led
By fond affection’s care,
At evening seek thy grave, and shed
The tear of mourning there.

• • • • •

“Farewell to parting and farewell to pining,
So long as youth and springtime bloom!
Why, when life’s morning is shining,
Why should the brow be clothed in gloom?

"On every road thy pleasures greet us,
 As through life's pilgrimage we roam;
 With wreaths of flowers you come to meet us,
 'Light, kindly, lead' us to our home.

"The rivulet purls and plays as lightly
 As when it danced to Eden's breeze;
 The lovely moon still beams as brightly
 As when she shone through Adam's trees."

The poet Goethe says:

"It matters not, I ween,
 Where worms our friends consume,
 Beneath the turf so green,
 Or 'neath a marble tomb.
 Remember, ye who live,
 Though frowns the fleeting day,
 That to your friends ye give
 What *never* will decay."

Washington Irving says that the sorrow for the dead is the only sorrow from which we refuse to be divorced. Every other wound we seek to heal; every other affliction to forget; but this wound we consider it a duty to keep open. This affliction we cherish, and brood over in solitude. * * * Who, even in the hour of agony, would forget the friend over whom he mourns? No, the love which survives the tomb is one of the noblest attributes of the soul. If it has its woes, it has likewise its delights; and when the overwhelming burst of grief is calmed into gentle tear of recollection; * * * who would root out such a sorrow from the heart? * * * No, there is a voice from the tomb sweeter than song. There is a remembrance of the dead, to which we turn even from the charms of the living. Thus the angel,—Father Time admonishes us:

"Bring me my dead, into the storied hall!
 Where I have garnered all
 My harvest without weed;
 My chosen fruits of goodly seed;
 And lay him gently down among
 The men of State, the men of Song;
 The men that would not suffer wrong,
 The thought-worn chieftains of the mind,
 Head servants of the human kind.

"Bring me my dead! autumn sure shall shed
 Its beams athwart the bier's heaped blooms
 A many tears shall flow; his words in cadence sweet and strong,
 Shall voice the full hearts of the silent throng.

"And oh! sad wedded mourner, seeking still
 For vanished hand-clasp, drinking in thy fill
 Of holy grief; forgive, that pious theft
 Robs thee of all save memories left.
 Not thine to kneel beside the grassy mound,
 While dies the western glow, and all around
 Is silence, and the shadows closer creep
 And whisper softly—'*All must fall asleep.*'"

Oliver Wendell Holmes sleeps—

"Where the rose is fresh, and blooming—
 Where the vine and myrtle spring—
 Where the turtle dove is cooing—
 Where the gay cicadas sing—
 Whose may be the grave surrounded
 With such store of comely grace,
 Like a God-created garden?
 'Tis Doctor Holmes' *resting place*.
 Spring and summer and the autumn
 Poured their gifts around the bard,
 And ere winter came to chill him,
 Sound he slept beneath the sward."

—SCHILLER.

TO THE GRAVE OF DOCTOR HOLMES.

"Beloved Poet-Physician, another calls
 To see thy sacred dwelling-place,
 Where thou, slumbering, lies in this sequestered spot.
 No unhallowed foot of sauntering idler
 Comes to spend a vacant hour
 In fashionable fantastic cemetery;
 But a heart-thrilled stranger,
 Pursued by time's relentless waves
 Is blown by fate, upon the sand-chafed shore,
 And with holy breast, and tearful eye,
 Bends o'er thy earthly shrine
 And 'tossed by ills of life,' as by Atlantic's wave,
 Would fain sit down beside thee,
 And gladly share thy envied place.
 Thy comrades with glistening eye and loving hand
 Laid thee, gently beneath time's shifting sand;
 And o'er thy sacred dust have placed
 This hallowed urn, on which the moss has grown
 A sad, silent witness—'unlettered time has flown!'
 The spring fir-tree greens around,
 And spreads its balmy fragrance;
 The lofty pine bends its boughs,
 And breathes Aeolian murmurs;
 The river glides its winy waters;
 The sea sends up its billowy cry,
 And here, amid God's holy temple,
 Which He himself has made,
 We kneel and fain would breathe a matin
 That our spirits at last may rest in Heaven."

FAIR SLEEPER.

• • • • •

"Sleep on, we leave thee now, but soon
 May sleep in earth more rudely trod.
 Like thine, our breast too—alas! must yield
 To earthly pressure and the sand.
 The cold, sharp sand, must fill the chest
 Where, now so long, the lungs have heaved,
 And heart has throbbed, and ached,
 And throbbed and ached again."

Doctor Holmes, though a giant in intellect, was a child at heart, tender, naive, lovable, sincere and full to the end of his long and eventful life, of youthful enthusiasm. All through his poetical writings he loves

to paint, in beautiful colors, the flowers of the heather, the trees on the hillside, the feathered songsters of the forest, and the eternally beautiful scenes sketched by a divine masterhand on the canvas of the heavens, in soft tints or in colors gay. In *daytime* he roamed through field and forest, glade and glen—daisied plain or wooded knoll, with beaming countenance and throbbing heart. At *nighttime*, he often sat on the roof of his house, gazing at the stars or listening to the sublime language of the night spoken and chanted by “choirs invisible” amid the myriads of orbs above.

“THE BROKEN CIRCLE.”

BY DOCTOR HOLMES.

“I stood on Sarum's treeless plain,
The waste that careless Nature owns:
Lone tenants of her bleak domain,
Loomed huge and gray the Druid stones.

“Upheaved in many a billowy mound
The sea-like, naked turf arose,
Where wand'ring flocks went nib'ling round
The mingled graves of friends and foes.

“The Briton, Roman, Saxon, Dane,
This windy desert roamed in turn;
Unmoved these mighty blocks remain
Whose story none that lives may learn.

“Erect, half buried, slant, or prone,
These awful *listeners*, *blind* and *dumb*,
Hear the *strange tongues* of tribes unknown
As wave on wave they go and come.”

“Who are you, giants, whence and why?”
I stand and ask in blank amaze;
My soul accepts their mute reply:
A mystery, as are you that gaze.”

“A silent Orpheus wrought the charm
From riven rocks their spoils to bring;
A nameless Titan lent his arm
To range us in our magic ring.

“But time with still and stealthy stride,
That climbs and treads and levels all,
That bids the loosening keystone slide,
And topples down the crumbling wall,—

“Time, that unbuilds the quarried past,
Leans on these wrecks that press the sod;
They slant, they stoop, they fall at last,
And strew the turf their priests have trod.

“No more our altar's wreath of smoke
Floats up with morning's fragrant dew;
The fires are dead, the ring is broke,
Where *stood* the *many* stand the *few*.”

"My thoughts had wandered far away,
 Borne off on memory's outspread wing,
 To where in deepening twilight lay
 The wrecks of *friendship's* broken ring.

"Ah me! of all our goodly train
 How few will find our banquet hall!
 Yet why with coward lips complain
 That *this* must *lean* and *that* must *fall*?

"Cold is the Druid's altar stone,
 Its vanished flame no more returns;
 But ours no chilling damp has known,—
 Unchanged, unchanging still it burns.

"So let our *broken circle* stand,
 A wreck, a remnant, yet the same,
 While *one last, loving, faithful hand*
 Still lives to feed its Altar Flame!"

"Does all that made us human fade way
 With this dissolving clay?
 Nay, rather deem the blessed isles,
 Are bright and gay with joyous smiles,
 That angels have their play,
 And saints that—(tire of song)
 May claim their holiday.

"All else of earth may perish; *love* alone
 Not *Heaven* shall find outgrown!
 Are they not here, our spirit guests
 With *love* still throbbing in their breasts?
 Once more
 Let flowers be strown,
 —Welcome—
 Ye shadowy forms,
 We count you still *our own*.

[TO BE CONTINUED.]

TRANSACTIONS.

CLINICAL SOCIETY OF THE UNIVERSITY OF MICHIGAN.

STATED MEETING, MAY 17, 1911.

THE PRESIDENT, REUBEN PETERSON, M. D., IN THE CHAIR.

REPORTED BY JOHN WILLIAM KEATING, M. D., SECRETARY.

READING OF PAPERS.

PSYCHOANALYSIS AND SOCIAL SERVICE.

DOCTOR LOUVILLE E. EMERSON read a paper bearing this title. (See page 209.)

THE PRACTICAL VALUE OF THE PSYCHOANALYTIC METHOD IN THE TREATMENT OF THE NEUROSES.

DOCTOR THEOPHIL KLINGMANN read a paper on this subject. (See page 220.)

DISCUSSION.

DOCTOR GEORGE M. KLINE: I am quite familiar with Doctor Emerson's work. Psychoanalysis has opened a new field, and in most instances it has been productive of gratifying results; in others it has not. I think that Doctor Klingmann hit the nail on the head when he said that there must be a selection of cases. Every case is not amenable to treatment in this way. It can readily be seen that the work entails a great amount of labor, and Doctor Emerson has done this with great patience and effectiveness.

DOCTOR REUBEN PETERSON: Doctor Emerson mentions the coldness of the woman toward her husband as a part of a definite plan to revenge herself upon him and others on account of the secret knowledge of her mother's misstep. He refers to her as saying that she had trained herself to a cold and unnatural insensibility with the same object in view. This may or may not be true. She may belong to the class of women who never have any sexual feeling. This being the case, she may have tried to explain her lack of feeling on the ground that she endeavored to suppress it, for certain reasons. While I have never kept any accurate records on the presence or lack of sexual feeling in my gynecologic patients, my general impression, based upon the answers of many hundreds of women I have questioned on this subject, is that not more than fifty per cent have any feeling whatever during sexual intercourse. I am convinced that professional and popular opinion in regard to this matter is decidedly wrong. Women who have no sexual feeling are very sensitive about it, thinking it an abnormality and that it should be concealed from their husbands. For this reason sexual feeling is often simulated and the husband may be kept in ignorance of the deception. Therefore, I think this woman's explanation should be carefully scrutinized before being accepted as true.

While psychoanalysis is interesting and undoubtedly of some value, in my opinion it should only be made use of by men trained along psychologic and neurologic lines. For, after all, the entire value of the procedure depends upon the interpretation of the answers received. I must protest against ascribing all neurologic troubles to previous sexual traumas. In fact it is my opinion that such traumas are not very frequent in the sense that they influence to any great extent the future lives of people with good constitutions and good heredity. People with degenerate tendencies or of unstable nervous equilibrium may refer back their troubles or the questioner may, to some previous sexual trauma, but even then it will seem to the average physician as questionable. It is a matter, to my mind, closely allied to hypnotism. Both have a scientific basis and should be carefully considered and investigated. Yet with each there would seem to be danger that the investigator may be carried too far, unless he hems himself about with a lot of common sense principles.

I am sure I voice the sentiments of the Society, when I thank both Doctor Emerson and Doctor Klingmann for bringing this interesting subject before us in the way they have.

DOCTOR KLINGMANN: Doctor Emerson has convinced us that the psychoanalytic method of treatment is at least interesting. I have not had any experience with such extreme cases as he has dealt with, but I can fully appreciate the difficulty which one has to overcome in treating cases of that character. In treating the ordinary cases of hysteria and other nervous disorders by this method I have usually been obliged to combine the Freud analytic method and the Jung association method. We can learn much by first applying Freud's technic, but I think my final success has been in the association method of Jung.

DOCTOR EMERSON (closing the discussion): I should like to answer one or two points. Doctor Peterson spoke as though the woman had herself made all this analysis, but she knew nothing about it. She did not have any idea that there was any relation, sexually, between her sickness and its causes. Moreover, I do not wish to give the impression that the sexual relation, as sexual, was the important point. Freud has changed his opinion as to the importance of early sexual trauma, thereby showing that flexibility which goes with a great mind. He now believes that it is not sexual excitements that lead to illness, but the attitude the patient takes toward such experiences. The whole question is one of the constellations and whirlings of feelings and emotions, and the attitude one takes to such experiences. It is perfectly clear that the sexual feeling is toward their husbands and the possibility of children, therefore, I would perhaps the most intense feeling we possess, next to the desire for life itself, and the attitude one takes is proportionately important. I think Doctor Peterson is quite right about fifty per cent of women being anesthetic; the point is their entire attitude towards the situation, their feeling toward their husbands and the possibility of children. Therefore, I would like to have the sexual idea in the narrow sense, somewhat less emphasized, as I think Doctor Klingmann would, and included in the more general idea of emotion or feeling. With this particular girl the story came out of a clear sky. I asked no questions leading up to it, and in her case gave no association tests. She was greatly afraid of me at first, thinking I was going to hypnotize her, and that she would do something involuntarily through my influence, but nothing of the sort took place, and she came to regard me as her friend, really trying to help her, and of her own free will told me of this thing that had been troubling her all her life.

The whole point to my mind is that this young girl, feeling bitterly disgraced by the knowledge of her mother's early sexual mistake, which resulted in her own birth, became insolent and saucy, and refused to obey her parents; tried to sublimate her feelings, as much as possible, and so perhaps overworked at school; hardened her heart to many of the most important moral issues of life, and so went from one bad thing to another. Not that she had a sexual trauma in childhood, in a narrow sense of the term, but the long series of unhappy influences and bad attitudes led finally to the illness.

It is to be noted, however, that these attitudes are sexual, in the sense

that they are closely related to sexual situations, and must result in somatic disturbances of a sexual nature.

RESEARCHES IN NERVOUS ANATOMY.

DOCTOR GEORGE L. STREETER read a paper bearing this title. (See page 224.)

REPORTS OF CASES.

A CASE OF LUPUS IN A BOY OF ELEVEN YEARS.

WILLIAM F. BREAKEY, M. D.

Department of Dermatology.

THIS case is reported because of the somewhat unusual as well as typical features in its history and progress, rather than with the purpose of presenting a full consideration of lupus with all its complications.

The patient came to the University Hospital because of the condition of his face which began at the age of three, eight years ago.

Family History.—This is not clear as to the grandparents. The maternal grandmother died of heart disease, after a long illness; some great aunts and uncles, and aunts on both sides died of tuberculosis. His father is thirty-five years of age and has always been well. His mother is twenty-eight and has never been strong. She has sick headaches, backaches and stomach trouble, and catches cold easily but has no chronic cough, and has suffered no loss of weight. She cannot go out of doors much in winter. She has no brothers living or dead, but has two sisters living and strong, with one dead of cancer. His father has three brothers, two strong and well, and one who has rheumatism and a chronic sore upon the leg, but he does not think that it is like lupus. There are two sisters in good health.

The patient has no sisters living or dead, but has three living brothers. Two of these are well, do not catch cold easily, and have neither coughs nor ulcers. One is sickly and has had tuberculosis of the knee for three years. He cannot go out in the winter for fear of catching cold and coughing, but has no chronic cough.

The patient weighed seventy pounds in February and sixty-seven pounds about a month later. He says that he was weighed before with his shoes on and that this last weight is without shoes. The nurse also reports that he has not been eating well of late but he says that he eats all they bring him. In eating he cuts his food fine and uses a fork, but is careful not to touch the inside of his lip, which is sore. He can chew well and the inside of his mouth is not sore. In drinking he has to put the liquid in a bowl and put his face down into it, or else use a teaspoon. He bathes his face about every one-half to one hour, and is getting x-ray treatments of six minutes duration on alternate days, with a "Walter 4 tube" at thirty centimeters distance and a current of two milliamperes.

The ulcerated area extends into the mouth on both sides, is worse upon the left side, and goes into the line of the teeth. It covers the external side of the gums, but does not involve the gum inside the line of the teeth at any point. Inside the lips there has not been a very marked improvement, but the ulcer on the outside has improved much and is smaller than at the time of admission. He can move his lower lip,



FIGURE I.—Lupus of the Face Before Treatment.



FIGURE II.—Showing Improvement Obtained After Three Months' Treatment.

which he could not do at that time. He appears to be in fairly good general health, and is moderately bright, mentally. He has never attended school because of his marked disfigurement, but he does some reading voluntarily.

When three years old his disease began "as a small pimple," just anterior to his left ear. From that time on it grew to a condition of ulceration, increasing in dimensions until three years ago he lost the left auricle. After that the disease extended until it involved its present area.

The ulcerated area of the lips and mouth is very sensitive to the touch and gives him considerable pain, which is relieved by placing his face in water. Before coming here he used ordinary water. Now we use sterile salt solution. The pain when the surface becomes dry wakes him in the night. He obtains relief by plunging his face in a basin of salt solution which is kept constantly by his bedside.

Lupus of the mucous membranes occurs not only in connection with that of contiguous integument, but it may occur when the cutaneous lupus is not contiguous. It is believed that in these detached lesions the original infection is in the nose. The most frequent site is the nasal fossa near the entrance. According to Finsen, in seventy to eighty per cent of the cases treated in his Light Institute, the mucous membrane of the mouth or nose was also involved. This is a much larger average than is seen in this country. Bender found in three hundred and eighty cases about forty-five per cent with mucous membrane involvement.

I pass around some photographs of lesions to be differentiated from lupus which illustrate the difficulties of diagnosis, and to show how easy it is to confound the lesion with epitheliomata.

First, the regions of the nose and particularly the lips, are most frequently the site of lupus foci. Commonly they share in the disease when it is found on other parts of the body. Most cases begin in early life, seldom before three or after ten. There is a preponderance of females afflicted. The site of lupus scars often become the seat of epitheliomata, which in turn may further degenerate into carcinomatous conditions.

Apart from the loss of the ear this patient has a fairly symmetrical face and he is much better than when he came here. He has practically been limited in his treatment to cleanliness as far as possible and the x-rays. The gain from the use of the latter was so slow that I decided to try pyrogalllic acid, about a ten per cent ointment, not far from the strength ordinarily used in epitheliomata. This of course needs to be used with care for fear of causing a dermatitis and conjunctivitis.

The varieties of treatment may be included under two or three heads, such as cautery, curetting, and x-ray. You are all familiar with the Finsen light treatment which created the greatest furor of any mechanical treatment in medicine in our lifetime. I may say that there are practically no institutions in this country where the treatment as instituted by Finsen is now carried out. We Americans cannot take time to expose a patient to one to six hours continuous sunlight even when sunlight can be counted on without interruption. Moreover, the apparatus is expen-

sive. Thus, as far as the light treatment goes, it has come down to the x-ray. The boy has been treated since February, and there is marked improvement in some ways. He has less appetite, is getting a special diet with cod-liver oil, and he has the freedom of the hospital. The question may arise as to what extent should isolation be imposed upon the patient when we are doing so much to isolate patients with ordinary tuberculosis. My assistant has made smears in this case, but failed to discover any tubercular organisms in the two that he made. However, this is not to be wondered at for often they are not found. In this case it is not needed for diagnosis.

Since last Thursday and Friday he has had an application of pyrogallie acid ointment. There is some gain, but on the other hand there is some slight conjunctivitis of the lower lid, illustrating the need for great caution in applying this remedy.

Obviously the better field for the use of caustics is in small single or separate areas of ulceration or nodular jelly-like tumors. In the latter lesions the pointed solid silver nitrate stick thrust deep into the conical mass is often curative in a single application. If we can have him under observation long enough for safe trial we expect to try the tuberculin in conjunction with the Röntgen rays.

A report of this case may appropriately be accompanied by reference to a case of lupus in the hospital in May, 1891, treated by Koch's lymph in this clinic, the first so treated in this part of the country occasioning considerable local and general interest. (See "Report of Section on Dermatology and Syphilology" at Forty-third Annual Meeting of the American Medical Association, June, 1892.) The University Hospital having a sample of the lymph sent to Doctor Vaughan, an opportunity was offered to test the treatment. The first typical lupus patient on whom it was tried, an unmarried woman aged twenty-eight, received ten injections of five-tenths to nine-tenths milligrams of the lymph at intervals of three to six days. The characteristic reactions in temperature, pulse, and respiration resulted in a marked degree—an erythematous dermatitis redened the lupus area, followed by a seropurulent effusion drying to milky crust which later scaled, leaving apparently healthy skin. The lesions, which were mostly dry and crusted, soon healed. The point of interest is that the cure or improvement was not more permanent than has followed other modes of improvement, or none at all, and the prompt gain was not more rapid than has followed an erysipelatous inflammation. The patient was also taking tonics at the same time, and upon discontinuing them, the disease returned more actively.

The patient returned to the hospital ten months later, with recurrence in nearly all the locations of the disease. She was unwilling to have the tuberculin treatment repeated. We gave a trial to the Gibbes-Shurly iodine liquid, injected in the gluteal region, together with cod-liver oil, and the destructive process showed marked abatement.

The report referred to begins with the statement that one of the purposes of this paper is to illustrate the need of delaying the report of a case until sufficient time has elapsed to make a fair and complete report,—and

suggesting that had the report been made a year earlier a much more sanguine color might have been given to it and that the same could be said of other reported cures. Speaking twenty years later, I would say that the patient should have persisted and had the tuberculin treatment repeated. As we may say of salvarsan, it is too much to expect a single saturation will be permanent in its effects. Such extravagant reports came from some parts of the country as to the effects of the lymph that the Marine Hospital Service detailed Doctor Geddings to examine as to diagnosis, treatment, and results. His conservative reports were accepted as trustworthy and did much to cause confidence in the lymph in appropriate cases.

While there have been many valuable contributions to the pathology and therapy of lupus within the past two decades, and great improvement in methods increasing the percentage of cures, yet no arbitrary rule of treatment can be laid down for all cases. Every case must be treated according to its indications as furnished by the history and peculiarities of the patient. Such treatment should include tonics in the largest sense, good air, good diet, in a word everything that any tubercular patient should have.

A CASE OF INTERCILIARY STAPHYLOMA DUE TO KNIFE INJURY.

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THIS child was injured in the ciliary region of the left eye a little less than a year ago with the blade of a penknife. The wound involved the limbus, extending outward toward the ciliary body. According to the history, there was no prolapse of the iris at the time of the accident. The wound healed in about two weeks and shortly after the cornea began to protrude, the parents believing this to be caused by the atropin which had been used to dilate the pupil. This condition has continued to gradually increase to the present time until we now have a large traumatic interciliary staphyloma. The upper part of the cornea is clear; the upper part of the iris is clear, only the lower part being crowded forward through the limbus; the ciliary body is dragged forward and is becoming atrophic.

This case is most interesting from the standpoint of treatment. If the injury were not in the ciliary region the staphyloma could be excised and the wound united with stitches, probably saving the globe; but inasmuch as the wound was in the ciliary body and the stitches would have to be put through the ciliary region which is already seriously involved in the staphyloma, the danger would be so great that it is not considered safe to save the eyeball. Irritation long continued from an injured eye after such trauma is greatly to be feared; for these reasons it is considered wisest to enucleate. It is very unfortunate to be obliged to do an enucleation in so young a person because the orbit does not usually develop normally and even if an artificial eye can be worn there is liable to result a facial asymmetry from the lack of development of the bones of the orbit.

NOTE—The eye was enucleated May 18, 1911. Convalescence was uninterrupted and he was discharged May 28.

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ORIGINAL ARTICLES.

MEMOIRS.

ULTRAMICROSCOPIC ORGANISMS.*

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WHAT I intend saying this evening is surely in part known to you all and therefore will be more or less of a repetition, and yet during the course of my remarks I hope to be able to bring forth some new interesting things.

By ultramicroscopic organisms is meant beings that are smaller than the ordinary microscope is able to show us, and when this is said the natural question arises, how we know that there are such things. We are accustomed to depend upon the microscope to reveal to us the presence of minute living things. It was formerly thought that no living cell could exist unrevealed by the microscope. If one could not find an organism in a diseased tissue it was usually and most conveniently explained by saying that it was there in some unstainable, invisible form, but during the past few years, especially since 1898, a group of organisms have come to be known which are of this ultra class, invisible under the microscope.

The demonstration of the presence of these organisms may be effected by two methods; first, by filtration. It is reasonable to believe that an organism which is so small as to be invisible under the microscope should pass through filters which retain the smallest of the visible organisms. If, therefore, we have a secretion, blood, or a suspension of tissue, say, in which an organism is thought to be present, this liquid preferably diluted with salt solution is passed through a suitable filter. As a control of the efficiency of the filter some very small organisms, such as staphylococcus, of bacillus pyocyaneus, or bacillus prodigiosus should be added to

*Read before the Clinical Society of the University of Michigan, June 7, 1911.

the liquid which is being tested. If the filtrate upon subsequent inoculation into a susceptible animal produces infection, we are reasonably justified in believing that the germ is smaller than our test object, provided that the latter does not pass through the filter. The inoculation of large quantities of the filtrate into bouillon and other media will reveal the presence of the test organisms if any have passed through the wall of the filter. If no growth is obtained it means that the test object is held back by the filter.

The filters which are used for this purpose differ greatly in their permeability. The one which is most permeable and which therefore is used first for such tests is the so-called Berkefeld filter which is made of compressed infusorial earth. There are several grades of the Berkefeld filters indicated by marks such as V (fast), W (slow), et cetera. Obviously, the fastest filter possesses the largest pores, which may be of such size as to allow bacteria to pass through. The filterability of the virus through these different grades of Berkefeld should be determined before making use of the less permeable filter.

To go a step further, resort is had to filters which are more compact, namely, the various porcelain filters, the best known of which is the Pasteur filter. Of the Pasteur filters there are at least two commercial grades, W which is fast, and B which is relatively slow and is therefore regarded as the most dense. There is a third type, manufactured in England, called the Doulton which is even less permeable than the Pasteur B.

Within the last two or three years it has been suggested that we make use of the so-called ultrafilters which consist of a layer of colloidal material. This may be a collodium sac or a layer of agar. With filters of this type it would seem that we are dealing with a perfectly homogeneous membrane, and one might be inclined to think that only substances in solution would go through such membranes. As a matter of fact the collodium and agar filters are not homogeneous, but are made up of pores just the same as porcelain or infusorial earth filters, only the pores are much finer, as has been actually demonstrated by physical methods. The actual passage of some organisms through such membranes has been effected.

The first indication, perhaps, of a microorganism which would be of this ultra class was brought out by Pasteur's work on rabies in 1885. At that time, in examining rabic material he was struck by the fact that no bacteria could be demonstrated and he expressed the view that the cause of rabies was probably too small to be visible. It was not until the latter nineties that this field of research was again entered on and, since then it may be said that about twenty-five distinct diseases of man and animals have come to be recognized as caused by ultramicroscopic organisms.

Before taking up some of these special diseases it may be profitable to discuss whether it is at all possible to see their ultraorganisms. I said they were invisible, but is it possible, in any way, or by any method, to actually demonstrate such small things? As far as any ordinary microscope is concerned this is absolutely impossible with the unstained organism, for the reason that the wave length of the light which we use, con-

ditions the minimum size of the object which can be seen by it. It is quite impossible, on theoretic grounds alone, to see with the ordinary microscope any object which has, let us say, a length of less than one-fourth micron. It is possible to see an organism which is less than one-quarter micron wide provided it is several microns in length, as is actually the case with our spirochetes. These organisms though very thin can still be seen because of their length, since the light breaking around such an object makes it visible. But if the object were round and less than one-quarter micron it would be absolutely invisible.

In recent years we have heard much about the ultramicroscope which is intended to reveal things which the common microscope does not show. It is true that it does show things which one cannot ordinarily see. Special contrivances giving the so-called dark field illumination will reveal objects that are extremely small. The trouble is that it reveals too many of these extremely minute particles. The material which one is called upon to examine, namely, serum, effusions, suspensions, et cetera, are swarming with colloidal particles, large and small, such as in the case of liquids that contain colloidal matter. Hence it is well nigh impossible, in the presence of so many thousands of other small particles, to see the germ, even if it is there. Since the dark field reveals the motes in suspension in liquids, just as does the sunbeam, those which are present in the air, it follows that much caution must be used in interpreting the nature of the particles observed. On several occasions, wrong conclusions have been drawn from such observations. If the organism was elongated or had a very active darting movement one might be able to differentiate it from the myriads of dancing particles; otherwise it is impossible.

Another method for demonstrating the presence of these invisible things consists in trying to stain them. In order to get a result it is necessary to force the strain into the organism in much the same way as is followed when staining the ordinarily flagella on bacteria. By the use of a mordant and by successive deposits of the dye, it is possible to so increase the apparent size of the germ as to make it visible. By such a procedure, the organism of pleuropneumonia of cattle was demonstrated as a roundish object by Borrel and by Bordet. It is by no means certain, however, that the stained objects really represent the organism in question.

So much for the applicability of the ordinary methods in the study of the "invisible" virus. It is evident that we are limited to just two procedures—filtration and animal inoculation—in order to decide the presence of an ultramicroscopic organism. Without these two procedures one cannot assert the presence of these, the smallest of all living things. We are of course primarily interested in the causes of disease. The existence of pathogenic organisms, invisible, is then an established fact, which, once recognized, leads us to the belief in the existence of similar organisms though nonpathogenic. But of the existence of the latter we know absolutely nothing since our methods of study are limited at the present time to those organisms that cause infection in animals and plants.

As an illustration of a filterable organism I wish to mention, first, one

with which we have been working during the past year and which presents several extremely interesting facts. The organism in question was encountered by accident in the laboratory. Several stains of relapsing-fever spirochetes are maintained in the laboratory by the inoculation of blood from rat to rat. For some reason the rats begin to die, usually within forty-eight hours.

An investigation developed the fact that there were no bacteria present recognizable either by the microscopic or cultural method. On the other hand filtration tests and inoculation of the filtrates showed that we were dealing with something very small, how small we do not know, but it is safe to say that it is probably the smallest thing that has yet been recorded. The facts which form the basis for making this statement are twofold. First, it passes readily through the finest filters, such as the Pasteur B and the Doulton. We have not found one that it will not go through. Even the collodium sac and the agar filter, if not too thick, are permeable to this virus. The fact that it will go through a thin layer of collodium and agar is very suggestive of the smallness of the organism. Second, it is apparently not centrifugable. On centrifugation at high speed we should be able to throw the organism provided it is heavier than the liquid in which it is. The common bacteria, as is well known, are very easily centrifugated from the liquid. Of all the ultramicroscopic organisms, I know of none that resists centrifugation unless it be one which we are studying. Submitted to a series of tests at a speed of eight thousand revolutions per minute, for varying periods of time up to twelve hours, the liquid at the end of such tests was just as active on the top as on the bottom. In other words nothing was thrown down by the severest centrifugation. This simply indicated that the organism is extraordinarily minute.

Another interesting feature is the fact that the blood, in extremely small doses, is infective. This particular virus is always fatal to rats, and it is fatal even if we inject extremely minute quantities of the blood,—quantities that are comparable to a fraction of a corpuscle. Usually one billionth of a cubic centimeter will infect and we have obtained infections with one ten-billionth and even one one-hundred billionth of a cubic centimeter. We can well imagine that in these high dilutions only a few organisms, possibly but one, are present.

The ultramicroscopic organisms, it is clear, are characterized, first, by being filterable, and second by being invisible. The latter property, of course, is conditioned by our present limitations and new methods may enable us to demonstrate many of the members of this group. As a matter of convenience it may be well to designate these organisms as "ultrasomes," which term simply summarizes the above characteristics and is without prejudice as to whether they belong to the bacteria or protozoa.

The known ultrasomatic diseases are about equally divided between man and the lower animals. Yellow fever, dengue, pappataci fever, poliomyelitis, rabies, and aphthous fever, foot and mouth disease of cattle, and incidentally of man, have been most studied as regards their filter-

able virus. Exanthemic typhus, smallpox, vaccinia, mumps, scarlet fever, et cetera, are probably due to similar organisms.

Of the animal diseases we could perhaps mention half a dozen. In the case of cattle we have foot and mouth diseases, rinderpest, pleuropneumonia and vaccinia or cowpox. Two such diseases are known in horses; one is prevalent in this country, particularly in the west and south, and is known as pernicious anemia or swamp fever. The South Africa horse sickness is due to an organism of this kind. The blue tongue of sheep, sheeppox, rabies, canine pest, chickenpest, bird molluscum, and hog cholera are further examples of thoroughly studied diseases due to filterable organisms or ultrasomes.

I will not go into the discussion of these different diseases, but will limit myself to one example, that of poliomyelitis. Up to the summer of 1909 we knew absolutely nothing as regards the cause of this disease although for some years it has been supposed to be infectious. Several workers isolated various kinds of bacteria but the work was not convincing. In the summer of 1909, Lansteiner and Popper demonstrated that if monkeys were injected with brain or cord suspensions from a case of poliomyelitis, they contracted the typical disease and died of it. They tried to reproduce the experimental disease but failed to do so, and the reason was partly due to the fact that they employed the intraperitoneal method for injecting their material. A short time afterwards, in the fall, Doctors Flexner and Lewis began their studies which have contributed greatly toward clearing up the etiology of this disease. Previous to this they had attempted but had never been able to infect animals. They were now naturally in a position to profit from the results of the Viennese workers and so they inoculated monkeys with poliomyelitis material, placing it into the cranial cavity, subdurally. They succeeded not only in producing the disease, but also in doing what others had failed to do, namely, reproducing the disease from monkey to monkey. The virus is present in the spinal cord and brain matter and if the inoculation is made directly into the brain the disease is most always transmitted. In this way the virus has been kept by Flexner for two years and has gone through twenty-five or more successive passages from animal to animal.

After this fundamental work, it became possible to approach the question as to what was the cause, and since microscopic examination had failed to reveal anything, the natural thing to do was to try the effect of filtration. Infection followed the injection of such filtrates, hence in the fall of 1909, proof was furnished that this disease was due to an ultramicroscopic organism. All efforts to demonstrate its presence by microscopic means have thus far been unsuccessful. The only way by which the presence of the virus can be demonstrated is by its effect on the animal.

A large number of very interesting facts have been acquired by the workers in this country, in France, England, and in Germany, and it will be possible for me to touch only upon a few points. First, I may say that the virus, while especially present in the central nervous system is in the blood, early in the infection; also, in the organs, glands, et cetera.

so that it is possible at times to demonstrate its presence by inoculation of such material. Furthermore, this virus, like that of rabies and chicken-pest and the rat virus referred to, is quite resistant. Mixed with fifty per cent glycerin it retains its virulence for months—a striking analogy to the virus of vaccinia, rabies, rat, et cetera. Also, if the virus is kept in the ice-box at low temperature it will retain its virulence for a considerable length of time. Unlike the rabic virus, it cannot be attenuated by desiccating the cord over sulphuric acid or potash. It was hoped that the Pasteur method might be utilized as a preventive measure but the method is not applicable since the virus is not attenuated, but destroyed.

Its virulence is increased by successive passage through the monkeys, so that it will always kill, whereas in the beginning it will not do so in most cases. In the animals which recover there is something present in the blood that will destroy the organism, and that destruction is manifested best in the test-tube. For example, if the serum from a recovered animal or child is mixed in the test-tube with a fatal dose of the virus and then is allowed to stand in the incubator, or room temperature, or in the ice-box, the mixture when injected afterwards into a monkey will not produce the disease. In other words, a germicidal substance is present in the serum of the recovered animal. This naturally suggests the possibility of using such serum to prevent, and perhaps to cure the disease. Some tests in this direction indicate that it may be possible to realize that hope. It is difficult, however, to increase the immunity of the animal to any great extent; successive inoculations do not increase the germicidal constituent and consequently the serum is never active. If, however, a sufficiently large amount of the active serum is introduced by the subarachnoid method, instead of into the peritoneal cavity, and the animal is then inoculated with a minimum infective dose of the virus, no infection will result. This is the extent to which investigations of this kind have proceeded with poliomyelitis. It is possible that a suitable animal will be found which can be hyperimmunized sufficiently so as to yield a serum which can be used in practice.

Yellow fever is an old story, due to a filterable, ultraviolet micro-organism. I simply refer to it at this point in order to call attention to the fact that yellow fever, as well as several other diseases of this type, are spread through bites of insects. We have thus some ultramicroscopic organisms which, like poliomyelitis, are spread by contact, from individual to individual. Others are inoculated into animals directly through wounds, as in the case of rabies, vaccinia, et cetera. And, lastly, there are also those which are transmitted by insect carriers, examples of this type being yellow fever, dengue, papataci fever, et cetera.

In giving you this rather discursive story I hope I have succeeded in showing that there is a group of organisms beyond the reach of the microscope. A new world of beings is revealed and results of greatest value to man have already been secured.

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SKIN-GRAFTING.*

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DEFINITION: By skin-grafting is meant the transplantation of either the whole thickness, or a portion of the superficial layers of the skin to a recently exposed or granulating surface in order to hasten its healing process, and to prevent, as far as possible, future cicatricial contraction.¹

Grafts may be divided in general into *thin grafts*, where only a portion of the thickness of the skin is utilized (Reverdin and Thiersch), and *thick grafts*, where the whole thickness of the skin is used (usually spoken of as Wolf grafts).

Thick grafts may or may not be pedunculated. The pedunculated grafts may be from the immediate neighborhood, swung into place without disturbing the peduncle, or transplanted from distant parts, leaving the peduncle attached until the flap becomes viable, when it is cut from its base.

Thin grafts may be small or large, varying in size from a millimeter in diameter to several centimeters square.

Grafts may be obtained from the same person (autodermic); from another individual of the same species (isodermic); or from a lower species (zoodermic). The majority of grafts are taken from the same individual, although they may be taken from amputated limbs and cadavers within a few hours after death due to accident.

(a) ZOODERMIC: Zoodermic grafting has been tried for years with more or less success, grafts having been taken from the inner surface of a pullet's wing, skin from pigeons, young puppies, guinea-pigs, rats and rabbits. My own experience has been limited to the transplantation of the conjunctiva of rabbits to the human eye. All were unsuccessful.

Miles, who has transplanted the skin of dogs, rabbits, kittens, and frogs, was most successful with grafts from dogs and least successful with frog's skin.

Davis has taken whole-thickness grafts without the subcutaneous fat from the abdomen of young fox terriers and transplanted them on patients with ulcers following burns, and found that in most cases they would take, but that they macerated very easily.

Reverdin usually obtained his small bits of epidermis from the inner surface of the leg. He held the skin tense over the flat surface of the tibia and introduced the point of a rather large venesection lancet to the depth of five millimeters, then pushed it forward so that the point should emerge three or four millimeters further on, the small piece of epidermis being cut loose by the edges of the lancet. He placed the lancet bearing the graft upon the healthy granulations and slid it off, raw surface down, taking care that the edges were not rolled under.

Agnew transfixed a bit of the superficial layer of the skin with a sewing needle and raised it in the form of a cone, then with a razor or

*Read before the Clinical Society of the University of Michigan, June 7, 1911.

¹I quote from a monograph on "Skin Transplantation," by John Davis, M. D., Johns Hopkins Reports, Volume XV.

sharp scalpel cut off the top of the cone and transferred it on the needle to the desired point. Many points may be transplanted by this method, numbering in the thousands. There is more liability of cicatricial contraction following this method than when the larger grafts are used.

Thiersch grafts are those most commonly used and are of enormous size in comparison to those advocated by Reverdin. Thiersch's original instructions in 1886 were to cut or scrape off the granulations down to the firm underlying tissue and to stop all hemorrhage. The skin to be grafted was removed from the outer surface of the upper arm, which was put on and stretched with one hand, while with a razor very thin films of skin are cut by a sawing motion. He held that even the thinnest films obtained in this way contained in addition to the superficial epidermis, the papillary layer as well as a portion of the reticular layer of the corium. He was able to cut and successfully transplant pieces two by ten centimeters. He thought it necessary to transplant directly on the firm base and not on the unstable soft granulations.

Socin, in 1888, used a microtome knife for cutting these grafts and thus was able to obtain larger, broader films. Thiersch considered this a distinct advance in technic.

The Thiersch method is the method of choice, on account of its simplicity and smaller operative action, but in such exposed localities as the elbow, palm of the hand, and the knee, where there is considerable pressure and friction, whole-thickness flaps are better. It is advisable to use large flaps, as the healing is as good as with small ones and there are fewer scars and therefore less likelihood to future contraction.

The skin may be taken from almost any situation where there is sufficient laxity of tissue to admit of suturing of the edges of the fresh wound, the selection of location being determined by the nature of graft desired. Sessile flaps have been successfully placed on healthy tendons, fascia, muscle, spongy bone, and periosteum. According to Krouse, the ideal results to be obtained, namely, elasticity, softness, movability, and normal color, can be obtained in about one-third of the full takes. In whole-skin grafts a brown pigmentation may appear which, according to Krouse, originates from the broken down hemoglobin of the blood which remains in the flap. This can be guarded against by squeezing the flap gently between pieces of gauze before applying. This discoloration is unimportant in the covered portions of the body, but is much more serious on the face for cosmetic reasons. Full-thickness flaps sometimes shrivel, due probably to the puckering of the scar tissue in the depth of the wound. While these changes in no way impair the efficiency of the flap, nevertheless they would prevent us, except in cases of necessity, from using sessile flaps on the face, pedunculated flaps and Thiersch flaps being best for this region. Before the technic of full-thickness sessile flaps was perfected and proved so successful, better results were obtained by living, pedunculated flaps with subsequent amputation of the pedicle. The ordinary transplantation from distant parts can be used in comparatively few cases, the forced position being very trying to the patient, and in addition a considerable defect is left.

In using living flaps, that is, pedunculated flaps, several points should be borne in mind. Depending upon the form of the defect, an allowance should be made of about one-third more for elastic shrinkage. The subcutaneous fat must be of the same thickness throughout, if it is used. Sutures must be placed close to the skin edge in order to avoid any disturbance in nutrition, and should never exert any tension. The pedicle should be amputated in from five to fourteen days. Pedunculated flaps are usually successful.

The skin from which the graft is to be taken must be shaved and carefully prepared, but any method that includes scrubbing, the use of alcohol and bichlorid of mercury will suffice, providing the part is left free of all antiseptic solutions and carefully covered with a dressing of normal salt solution. At Johns Hopkins the following method is used: Shave the selected area, scrub carefully with green soap and water, and rinse with water. Sponge with ether, follow with seventy per cent alcohol, then with Harrington's solution (bichlorid of mercury, nine grains, hydrochloric acid sixty cubic centimeters, alcohol six hundred cubic centimeters, water three hundred and thirty cubic centimeters), and finally wash thoroughly with bichlorid of mercury solution one one-thousandth. Again wash carefully with sterile normal salt solution and apply a sterile gauze dressing wet with normal salt solution until ready to cut the graft. When Herrington's solution is omitted, use ninety-five per cent alcohol and continue as above.

It is important that the grafts be cut of equal thickness and include a portion of the stratum papillare of the cutis. All hemorrhage must be checked before the grafts are placed. This can usually be done by pressure with hot compresses. Some operators advocate the use of hydrogen peroxide or adrenalin. No antiseptics must be allowed to touch the grafts. It was at one time thought that skin taken from a part corresponding exactly to the defect would heal better, but this has been disproved.

In cutting grafts it must be remembered that elastic shrinkage takes place at once and that cicatricial shrinkage takes place later. There seems to be no way of anticipating or preventing the secondary contraction which sometimes follows an apparently successful Thiersch grafting. McBurney thinks it is due to too early abandonment of wet dressings, but this is very doubtful. The general health of the patient is as a rule important to successful transplantation, grafts not taking as well on syphilitic patients, and care must be taken in isodermic grafting not to transmit disease to a healthy person. Cases of smallpox, syphilis, and tuberculosis have been transmitted in this manner.

The grafts may be cut from any part of the body where the skin is thin and free from hair, the inside of the arm or thigh being the places usually selected. The thin grafts are cut with a razor, a Catlin, or microtome knife, the size and shape of the graft being governed by the size of the surface to be covered. At Johns Hopkins very large thin grafts are cut from the thigh by the use of a Catlin knife and two sterile boards about eight inches long, placed quite close together at right angles to

the length of the limb, the first being held by the assistant, and the other by the left hand of the operator. The knife is then engaged in the skin between these boards, and held almost flat against the limb, and by a rapid sawing motion the graft is cut, the knife closely following the board in the hand of the operator, which is drawn slowly along in front of it.

After cutting the graft it is picked up, the raw surface exposed, upon a piece of protective taken from the salt solution. The whole is then placed upon a board by means of a smooth instrument and the graft is spread evenly. It is then covered with gauze, wet in salt solution until the area to be grafted is ready. The large graft should be buttonholed to get rid of air bubbles, and to allow the escape of secretion.

APPLICATION OF THE GRAFT.—Being sure that all bleeding has ceased, the protective on which the graft is spread is placed over the defect, so that the graft is next to the wound, then gradually the protective is lifted up and the graft is separated and left in place. It is pressed down evenly on the wound with pieces of gauze in order to get rid of air bubbles, and to make it adhere as closely as possible. If more than one graft is needed they are placed so that they overlap a little the edges of the wound and the adjacent graft.

If the graft is to be applied to a clean flesh wound it is important to see that all hemorrhage has ceased and that the wound is as dry as possible. If a granulating wound is to be grafted, it is only necessary that the granulations be in a perfectly healthy condition before the graft is attempted. A Thiersch graft will take just as well on a healthy granulating surface as upon a fresh wound.

TECHNIC.—There is still some difference of opinion as to the relative merits of the wet or dry method of dressing grafts, but all agree that success depends on absolute asepsis. Krouse says that the three main things necessary for the successful transplantation of whole-thickness sessile flaps are complete asepsis, perfectly dry technic, and a suitable preparation of the area to be grafted.

DRESSING OF THE GRAFTED SURFACE.—Most surgeons use perforated or overlapping strips of rubber protective next to the graft, and over this gauze saturated with sterile normal salt solution. Dry gauze is sometimes placed directly over the overlapping protective strips or directly over the graft. Some prefer alternating wet and dry dressings, while others use dry powders and ointments.

It is our practice to use the dry method and open air treatment. A protective is carefully applied to the grafted surface and over this dry gauze which is held in place by a bandage. At the end of twenty-four hours all dressings are removed, edges of the graft covered with dusting powder, and simply protected by a layer or so of gauze over a suitable frame.

If whole-thickness flaps are to be used, after preparing the part from which the graft is taken, mark out with a knife the flap to be cut in the shape of an elongated spindle, in order that the edges of the wound can be easily approximated. The skin shrinks to about two-thirds its original

size transversely and a little less in its length. Allowance should be made for this in estimating the size of flap necessary in any case. Trim off the subcutaneous fat as the flap is lifted, leaving it in its base, and handle as little as possible. Apply the flap after shaping if necessary, and press it down evenly with gauze and apply the dressing. While it is always best to graft immediately on a fresh wound, should a granulating wound be present, the question arises as to whether it is best to graft on the untouched granulations or whether the granulating wound should be made a fresh one by the removal of the granulations. I have had very little experience with granulating wounds, but Doctor Davis is convinced that both thin and whole-thickness grafts take just as well on an undisturbed granulating area as on a fresh wound, provided that the granulations are clean, firm, rose-pink in color, and are not exuberant.

The grafts should be observed every day in order to meet any unexpected complication that may arise. If, when the protective is removed at the end of twenty-four hours, there is any collection of serum or blood beneath the graft, it should be snipped and pressed back in its bed. The edges of the graft are then covered with ointment or dusting power. I have come to use aristol exclusively.

The immobilization of the part after grafting is important. It is necessary to reinforce the grafts with some material which has enough body to act as a splint and at the same time is not too rigid to shape itself readily to any desired location. It is also very important that it should not adhere to the grafts and granulations. Doctor Davis, of Johns Hopkins, recommends a coarse mesh net such as is used for curtains with openings about one centimeter in diameter. In order to increase the body of the fabric, after washing out the sizing and drying, he soaks the material in a rubber solution made up of pure gutta-percha, from fifteen to thirty parts and chloroform, one hundred and fifty parts. When properly prepared the net should be of light greyish brown color throughout. It can be sterilized in a one one-thousandth bichlorid solution. After the grafts are in place the mesh is taken out of the bichlorid solution, thoroughly rinsed with salt solution and dried with a sterile towel. A piece is cut large enough to allow a margin around the grafted area of five to ten centimeters. Then the material is pressed snugly down on the grafted area and surrounding skin. The overlapping edges may be secured to the skin by strips of adhesive plaster. After the net is in position the dressing selected is applied and the whole secured by a bandage.

The grafts are, as a rule, cut while the patient is under a general anesthetic, although many operations have been made without general anesthesia. I have done a few but I believe it is more advantageous, and is an operation of enough severity, to warrant the use of a general anesthetic.

Freezing or cocainizing the external cutaneous nerves of the thigh have been tried with little or no discomfort to the patient, also the use of ether spray over the field of the cut.

For after-treatment, massage of the grafted area and surrounding skin is very advantageous, as it softens the graft, renders it more movable and

causes it to assume more rapidly the appearance of the neighboring skin.

The transplantation of mucous membrane has been tried for many years with good success. It is used principally in conjunctival defects and the membrane is obtained from the lips and cheeks. Doctor Davis has on several occasions transplanted successfully good sized pieces of vaginal mucosa on healthy granulating areas.

Where thin grafts are taken from black patients and placed on white ones, or from white and placed on black, the pigment disappears or appears after a comparatively short time.

One of the most striking things about skin-grafting is the persistence of the vitality grafts. As quoted by Davis, Martin found in his series of experiments that grafts kept in hermetically sealed tubes at a temperature of 32° Fahrenheit could be successfully transplanted after one hundred and eight hours; at 42.8° Fahrenheit the limits were eighty-two hours in free air, and ninety-six hours in confined air; at 68°, thirty-six hours in free air and seventy-two hours in confined air; at 82.4° Fahrenheit, six hours in free air and seven hours in confined air. He came to the conclusion that cold favored the success of transplantation, and heat was unfavorable and caused shorter duration of vitality.

The skin of amputated limbs has been successfully transplanted from thirty-six to ninety-six hours after amputation. Davis has successfully transplanted onto healthy undisturbed granulations pieces of whole-thickness skin, taken from a leg eighteen hours after amputation, at various intervals up to thirty days. The skin was kept in an ordinary ice-chest in a sterile jar, plugged with cotton containing a moist normal salt gauze sponge.

All experiments go to prove that nothing is lost in vitality in twenty-four hours, if the graft is kept cool. In cases where there is much bleeding the graft can be preserved and applied within twenty-four hours. Asepsis and a properly prepared field, and not "speed," are the most important factors in successful skin-grafting.

Detroit, 32 Adams Avenue West.

EULOGY ON OLIVER WENDELL HOLMES,

A. M., M. D., LL. D.

WILLIAM LANE LOWDER, B. S., M. D.

TIPTON, INDIANA.

[CONTINUED FROM PAGE 233.]

IN MEMORIAM.

A TRIBUTE TO DOCTOR HOLMES.

"There have been loftier themes than his,
And longer scrolls, and louder lyres,
And lays lit up with poesy's
Purer and holier fires:

"Yet read the names that know not death;
Few nobler ones than Holmes are there;
And few have won a greener wreath
Than that which binds his hair.

"His is that language of the heart
 In which the answering heart would speak,
 Thought, word, that bids the warm tear start,
 Or the smile light the cheek;

"And his that music to whose tone
 The common pulse of man keeps time,
 In cot or castle's mirth or moan,
 In cold or sunny clime.

"And who hath heard his song, nor knelt
 Before its spell with willing knee,
 And listened, and believed, and felt,
 The poet's mastery?

"O'er the mind's sea, in calm and storm,
 O'er the heart's sunshine and its showers,
 O'er passion's moments, bright and warm,
 O'er Reason's dark, cold hours;

"On fields where brave men 'die or do,'
 In halls where rings the banquet's mirth,
 Where mourners weep, where lovers woo.
 From throne to cottage hearth?

"And when he breathes his *master-lay*
 '*His silent sisters in humanity,*' all
 All passions in our frames of clay
 Come thronging at his call.

"Imagination's world of air,
 And our own world, its gloom and glee,
 Wit, pathos, poetry, are there,
 And death's sublimity.

"And Holmes—though long the race he ran,
 Though rough and smooth the path he trod—
 Lived, died, in form and soul a man,
 The image of his God.

"He kept his honesty and truth,
 His independent *tongue* and *pen*
 And moved in *manhood* as in *youth*,
 Pride of his fellow-men.

"Praise to the bard! his words are driven,
 Like flower-seeds by the far winds sown,
 Where'er beneath the sky of heaven,
 The birds of fame have flown.

"Such graves as his are pilgrim-shrines,
 Shrines to no code or creed confined—
 The Delphian vales, the Palestines,
 The Meccas of the mind.

"Sages, with wisdom's garland wreathed,
 Crowned Kings, and mitr'd priests of power,
 And warriors with their bright swords sheathed,
 The mightiest of the hour;

"And lowlier names, whose humble home
 Is lit by fortune's dimmer star,
 Are there—o'er wave and mountain come,
 From countries near and far;

"Pilgrims, whose wandering feet have pressed
The Switzer's *snow*, the Arab's *sand*,
Or trod the piled leaves of the West,
His own green forest land.

"We seek the cottage of his birth,
And view the scenes, he loved and sung,
And gather feelings not of earth
His fields and streams among.

"We linger by the Charles' low elms
And pastoral *brook*, and *woodland* fair,
And round thy *sepulchres*, 'Athens'!
The 'poet's tomb' is there.

"But what to them the sculptor's art,
His funeral columns, wreaths, and stones?
Wear they not graven on the heart,
The name—OLIVER WENDELL HOLMES?"

CONCLUSION.

The sad providence of Death has a lesson to teach. We should be faithless to our duty and recreant to our trust did we fail to endeavor to point it out. It teaches the truth of a mature life and a final adjudication and just arrangement of human events and lives. Mysterious shadows flit across each scene in the drama of human existence, and in the twilight of reason and the darkness of skepticism the shadows deepen; but in the light of "immortality" and the "gospel" the shadows lift and the inexplicable becomes as clear as noonday. Noonday is past; as the sun recedes the shadows follow, they deepen; and when the sun goes down, darkness envelops all things. The Gospel of Christ is to us as is the sun to the earth. So shadows of human history and events lengthen and deepen in proportion to the light of revelation that shines upon them, and they become total darkness when the light is blotted out.

Let us view *death* in the light of *reason* and *revelation* and see what it will teach. The light of reason enters not the regions that stretch away beyond the tomb. It deals with *only* the *now*. Of the *future* it can *only* guess. Knowing nothing of the future—reaching not into the beyond, it could not give indorsement to the smiting of vigorous manhood with the paralysis of death. Heavy are the shadows and gloomy the light which reason sheds on this sad event. Let us try the light of Divine truth. In this *light* the casket still remains. Friends bend beneath the burden of bitter bereavement. Our eyes are tear-filled, and our lips quiver as we speak our last "good-bye." The grave awaits the form we love, and our friend goes from us. So far the shadows still abide; but hark!—in the stillness of the *funeral hour*, in the quiet, hallowed hush I hear a voice speaking strange and wondrous things: "Thy brother shall rise again." At the sound of that voice the shadows flee away and the soul is filled with a holy and glorious light. That voice is the voice of God, and the light is light of immortality—this alone can solve the mystery of the dark valley. There is *one* word which exactly expresses our idea of the departed—*faithful*.

[CONCLUDED.]

TRANSACTIONS.**CLINICAL SOCIETY OF THE UNIVERSITY OF MICHIGAN.**

STATED MEETING, JUNE 7, 1911.

THE PRESIDENT, REUBEN PETERSON, M. D., IN THE CHAIR.
REPORTED BY JOHN WILLIAM KEATING, M. D., SECRETARY.**READING OF PAPERS.****ULTRAMICROSCOPIC ORGANISMS.**

DOCTOR FREDERICK G. NOVY contributed the results of recent research on this subject. (See page 241.)

DISCUSSION.

DOCTOR CARL D. CAMP: Doctor Novy's talk is very interesting and suggestive. I think he mentioned to me at one time that this ultramicroscopic organism in the rat was probably also capable of causing disease through the bite of the rat, and that he had studied cases of this kind. I think it is an interesting point, as showing that this particular organism might be transmitted to the human.

In regard to poliomyelitis, I am particularly interested in knowing whether it is contagious. It seems to me there might be three ways of transmission. I understand from Flexner's theory that possibly the organism is air-borne and gains access to the cranial cavity through the nasal secretion, being dry and carried from one to another. The clinical neurologists hold a different idea, that it is more likely carried by insects, which is generally supported by the epidemiology of the disease. It seems to me that the disease might be carried through the eating of food such as the flesh of animals that have carried this disease, and this last idea is borne out to some extent by its clinical manifestations.

As I have read the reports in the case of the monkeys used by Flexner in his experiments the lesions are usually in the nervous system, whereas we find in infants particularly that the symptoms of poliomyelitis generally develop as a general infection with marked gastrointestinal disturbances. Therefore, I am led to believe that the organism may be in the intestinal tract and gains entrance to the central nervous system in that way, especially if the organism is resistant to heat.

DOCTOR FREDERICK G. NOVY: I am glad that you mentioned the rat-bite fever. It is well known that the bites of rats may give rise to an infection in man. Quite a few of these cases have been studied at different times and I have been looking out for such material in order to ascertain whether or not the rat-bite fever of man was due to the organism with which we have been working. Several months ago, I received a letter from Doctor Koplik regarding a case which was clearly due to a rat bite. I asked him to send me some blood taken from the patient during the febrile stage. After some delay, the patient having left the Mount Sinai Hospital, some glycerinated blood was received and at once was inoculated into a number of rats. No effect followed, and I am almost inclined to infer from this experiment that the rat-bite fever is due to

some other organism. Still, this single test cannot be said to be conclusive. Perhaps, if the blood had been drawn earlier in the course of the disease a different result would have been obtained.

As to the other points, I may say that the organism of poliomyelitis is weaker than some others as regards temperature conditions, it being easily killed at about fifty degrees centigrade. The rat virus will stand sixty degrees for half an hour, and is therefore much more resistant than the virus of poliomyelitis. The prevailing notion regarding the transmission of the disease is that the virus is planted on the nasal or pharyngeal mucous membrane and thus gains entrance into the body. This is quite generally accepted for two reasons, first, the disease can be readily transmitted to monkeys by inoculation of the nasal mucous membrane. Furthermore, monkeys which recover from the disease may still have on and about the nasal mucous membrane virulent virus, weeks and even months after recovery. Hence such recovered animals may properly be looked upon as "carriers" of the contagion. This fact is perhaps the chief reason for believing that the nasal membrane is the portal of entry. It is true that one can get the disease through food, but the general facts, from the experimental side, would hardly justify the idea that the infection is gastrointestinal. The gastrointestinal symptoms are not as pronounced in monkeys, as they are in the higher beings.

SKIN-GRAFTING.

DOCTOR WALTER R. PARKER read a paper bearing this title. (See page 247.)

DISCUSSION.

DOCTOR JAMES F. BREAKEY: Doctor Parker has thoroughly covered the ground and I enjoyed his presentation of the subject. In my early experience in skin-grafting I found that the zoodermic grafts were not successful and I have not attempted them recently. I used frog's skin unsuccessfully. In chronic ulcers I find it usually difficult to get a clean field. The Wolf flaps on a clean field are more easy to secure and to apply. In securing Tiersch flaps in practically all cases the edges bevel and roll up making accurate application difficult. One must be careful to smooth them out. It is hard to be sure that there are no under-turnings, and the least bit of turning in tends very materially in preventing a satisfactory termination. The Wolf flap gives a sharp cut edge and with proper care will give satisfactory results.

On chronic ulcers, as I have already stated, the field is likely to be contaminated and it is hard to clean it satisfactorily without strong antiseptics which are fatal to flap union. There will result suppurative areas in some parts of the flap. In such cases the Reverdin graft may prove more successful. These are more easily and painlessly secured by picking up the skin with the point of a needle and snipping off the graft with a pair of scissors curved on the flat. It is the quickest and most painless method and gives a uniform area without much irritation to the patient from whom it is taken.

DOCTOR PARKER: There has been some work done at Johns Hopkins with the use of amniotic membrane in skin-grafting. I think one of the seniors at the hospital suggested it. Most of it has been satisfactory. Another way of obtaining the graft is through the use of blisters. Thus one gets a very thin graft, but they have not been entirely satisfactory. I think either the thin or the thick grafts have been more successful than either the blisters or the amniotic membrane. It is the custom at Johns Hopkins to save skin and mucous membrane whenever they can be secured. They are kept in the ice-chest in jars containing a moist normal salt gauze sponge and plugged with cotton.

REPORTS OF CASES.

REPORT OF A CASE OF SKIN-GRAFTING TO RESTORE THE CULDESAC.

WALTER R. PARKER, M. D.

Department of Ophthalmology.

I WISH to present a case of skin-grafting performed for the restoration of the lower culdesac in the left eye. After the left globe was enucleated, the lower lid became attached to the orbital tissue through its entire length, making it impossible for the patient to wear an artificial eye. The operation was done two weeks ago, and is a complete take. After dividing the tissues at the external angle making the palpebral tissue as large as possible, an incision was made in the border of the lid posterior to the intermarginal line, extending from the lachrymal papilla to the outer canthus, only the orbicular muscle being left attached to the skin. If too much tissue is left attached to the skin, the lid is apt to be too thick for a perfect cosmetic effect. A whole-skin graft about two inches square was taken from the arm, and sutured in the lower sac. The most important step in the operation is to attach the graft at the bottom of the sac to the periosteum of the orbital margin. This was done by passing three double-armed sutures through the graft in the line that was to become the bottom of the sac, passing on through the periosteum out on the cheek to be tied over a piece of rubber tubing. After drawing the graft down in place, the anterior border was sutured to the lid margin, the posterior border to the orbital tissues. A disc made of dental rubber was shaped to the opening and inserted between the lids for the purpose of holding the graft well down in the sac. This disc was left in place for a week when it was taken out, the eye socket cleaned and the disc replaced. As soon as the union was firm, the sutures around the graft were removed. The periosteal sutures remain in position for a period of a week or ten days.

REPORT OF A FATAL CASE OF HYDROPHOBIA IN A CHILD.

DAVID M. COWIE, M. D.

Department of Pediatrics.

THE case I shall present is one of a three-year-old boy, who was brought to the University Hospital, May 3, 1911, giving a history of having been bitten in the right cheek by a dog three weeks previously. The wound was not cauterized but was drawn together by adhesive

strips. It showed considerable inflammatory reaction but healed without suppuration.

The dog was shot and the brain sent to the University of Michigan Pasteur Institute and pronounced rabid. A report was immediately sent to the parties concerned, requesting that the child be brought here for treatment. As the child did not appear, after some length of time, Doctor Cumming sent a second urgent telegram. Still the child was not brought here until a week or ten days later.

No symptoms manifested themselves until May 1, eighteen days after the bite, when the child complained of soreness in the throat on swallowing and was unable to take food. There was slight fever, reported to have been 100.5° . During the attempts to swallow, the patient would throw his head up and back. This continued to the time he was brought to the hospital. He could not take food or water while here.

The patient arrived in Ann Arbor, May 29, 1911, at 4:30 P. M., twenty-one days after the accident. He was restless, unable to remain quiet, and ungovernable, crying on the slightest provocation. Doctor Cumming began the treatment at once and urged the parents to take the child to the hospital, but they refused to do so. At 5 A. M. the following morning, the parents became afraid of him and took him to the University Hospital. Towards morning after a wakeful night, he showed twitching of the extremities and had hallucinations of sight accompanied by fear. After entering the hospital he was more quiet, but showed marked tendency to sweat. His temperature was 102° . Soon afterward tonic convulsions developed at fifteen to twenty minutes intervals. He was shown in clinic at 11 A. M. and at this time the anxious expression and the convulsive movements were marked. The patient died in the afternoon, in the beginning of the paralytic stage.

The case is recorded because of the example it should set. Here is shown the useless waste of a life, doubtless of some promise, the result of a wilful procrastination.

The State of Michigan has provided for its citizens a Pasteur Institute at Ann Arbor, for the diagnosis and treatment of this disease, in charge of men thoroughly competent and skilful. Even the poorest of her sons may escape the certain death that follows the bite of a rabid dog if treatment is begun early enough. Yet, as in this case, in spite of all that has been said in public and private, some citizens still fail to take advantage of the privilege thus generously provided at their state university. This case is a sad illustration of what neglect will do.

DISCUSSION.

DOCTOR JAMES G. CUMMING: This is a very interesting case and also an unfortunate one. There are several points worthy of note. As stated by Doctor Cowie, the patient was bitten on the face. The wounds consisted of two deep punctures and one lacerating which was about one and a half inches in length. Owing to the fact that the wounds were on the face, that is, on an uncovered surface, and in close proximity to the brain, the incubation period in this case was of short duration, being only sixteen days. The history of this case supports the views held by Braurdel

that bites on the face have a high mortality and that they are rapidly fatal. Had the proper treatment been followed out I venture to say that the life of the patient might have been saved. Here we have a case which was undoubtedly infected with a large quantity of the virus causing this disease. Now, if the wounds had been thoroughly cauterized most of the infectious material would have been destroyed, and the remaining small quantity might have been cared for by the blood and lymph which are antagonistic to the virus. It is quite likely that thorough cauterization followed immediately by the Pasteur treatment would have saved the life of this patient.

The virus which caused the death of the patient can be traced back through four distinct generations. In the first generation we have well defined symptoms in a dog which was sent to the Pasteur Institute for diagnosis. Both the microscopic and biologic tests proved this dog to be rabid. Two of the dogs bitten by the one referred to were not killed, but later developed the disease and acted as spreaders of the second generation of the virus. Practically the same circumstance accompanied the transmission of the third generation. All dogs in the fourth generation were dispatched before symptoms developed with the exception of one. It is stated that the owner of this dog did not believe that there was such a disease as rabies and said that if there was he wanted to see a case. Three weeks later he noticed that the dog was excited and acted strange. It was tied up, but during the night gained its liberty and on the following day bit the child who reported for treatment at the Pasteur Institute too late.

With regard to the term, I may say that in the human subject hydrophobia is more correct than rabies. The terms used to designate this disease have their origin from the symptomatology. The human subject does not have the rabid symptoms which we find in the lower animals, but he does have a most distressing spasm when an attempt is made to drink water. This latter symptom is not at all marked in the dog. While it is often impossible for the lower animals to drink water, yet they will repeatedly attempt to do so. Therefore hydrophobia is properly applied to the disease in the human while the term rabies is used to designate the disease in the lower animals.

DOCTOR NEAL N. WOOD: In regard to this question of cauterizing the wound, I was much interested in the stand taken in an article published in the "American Practice of Surgery" by Doctor G. G. Rambaud, Director of the New York Pasteur Institute for many years. While he does not show proof he thinks that the cautery is not as effective as simple antiseptic open treatment of the wound with ordinary cleanliness. If there are many other such articles it might possibly account for physicians hesitating to cauterize these wounds.

DOCTOR CUMMING: As a rule, the public are not satisfied with cauterization alone but feel that the Pasteur treatment must be taken. Physicians do not realize the great value of the cautery in severe cases. Many are afraid to cauterize, although the wound heals rapidly, especially, if properly treated, although considerable tissue be destroyed. If full

strength carbolic is used it should be removed from the wound by washing with ninety-five per cent alcohol. If the latter precaution is not taken you may expect a mean, ulcerating wound which does not readily heal. I may add that the fee for treatment at the Pasteur Institute is twenty-five dollars. If the patient cannot pay the county does so.

A CASE OF SPLENIC ANEMIA.

LUTHER F. WARREN, M. D.

Department of Medicine.

THE patient entered the University Hospital April 14, with the complaint that his abdomen bloated and at times there was a swelling of the entire body. The family history was negative as regards present illness. The personal history is important. The patient dates his present trouble fifteen months back when his symptoms began with an attack of diarrhea, which lasted a month. At this time he was confined to the bed for a week. He vomited food mixed with brown-colored flakes, which his doctor said was changed blood. He did not return to work for three weeks. He was apparently well from that time until last August, 1910, when he had a second hemorrhage from the stomach. However, he had no stomach symptoms during the interval. This time he was confined to his bed four days and was absent from work for four weeks. At intervals during this time he noticed his stools were very dark. In January last he had his third attack. He was working in a mill, felt faint, and went outside to a spring for a drink, and after vomiting about a pint, fainted. He was taken home and only gained consciousness after arriving there. At this time he also vomited blood, dark at first and finally bright red. For a second time his doctor said his stools contained blood. This attack kept him from work for six weeks and since January he has practically been unable to do anything save be around the house. His feet and legs began to swell in January and with this swelling he had considerable pain and cramps in his extremities. His physical findings are as follows: The patient has a distinctly yellowish color, showing a marked brownish tinge over the neck, arms, and other areas where normally there is an increase in pigment. His abdomen is slightly above the rib level and the liver edge can be felt. Beneath the left costal margin can be felt a mass two finger-breadths below same and extending diagonally downward. There was a slight swelling of the extremities but this cleared up considerably before his entrance to the hospital. His laboratory findings are practically normal, save for the blood, which shows a red count of 2,760,000, white cells 4,700, and twenty-four per cent hemoglobin. Differential count—twenty-seven per cent lymphocytes, sixty-seven per cent polynuclears, two per cent eosinophiles, four per cent mast cells; blood pressure 115 millimeters of mercury. The stomach findings are normal, showing no evidence of retention and also no occult test. The stools showed a negative occult on two different occasions.

To briefly summarize the important findings in this case, we have a man, aged fifty, showing a distinct increase in pigmentation, such as we get in a hemolytic disease, with an abdomen containing a small amount

of fluid, the liver enlarged and palpable, and the spleen definitely felt. This is coupled with a history of repeated hemorrhages from the stomach, three in number, before his entrance to the hospital and with the absence of important laboratory findings on the part of the stomach. The findings as regards the blood condition, however, has a very important bearing. There are certain things which call for a differential diagnosis, the most important of which are gastric ulcer, leukemia, pernicious anemia, syphilis and malaria.

As regards the first the absence of any unusual stomach findings, such as retention, sarcinæ, yeasts, and occult blood in the stools, the absence of an area of tenderness associated with pain and absence of stomach symptoms between the attacks of hematemesis argue against such a diagnosis. The blood picture and possibly that alone can rule out leukemia at a glance, there being a severe secondary anemia associated with a leukopenia. Pernicious anemia, is possibly not as easily differentiated, for there are certain times in pernicious cases, particularly after blood crises, when the blood cells increase very rapidly, giving us a color index possibly as low as the one here. The history of hematemesis occasionally occurs in pernicious anemia and also the color this man presents is highly typical of this disease. The enlarged liver, however, is a condition which is not usually found in this form of anemia and although ascites is occasionally present, still we would not expect to find this in a person who is able to present himself without aid to the clinic. Then, again, the blood picture shows only a very moderate amount of poikilocytosis, and nucleated forms found. There is a very large unstained nucleus in a great majority of the cells. As regards syphilis, the patient denies infection and this is substantiated by finding a negative Wassermann. As regards malaria, although having an enlarged spleen, he also denies ever having this disease and no evidence of such can be obtained.

There remains another condition, however, which has been fully described by Sippey, Osler, Wentworth, Lyon and others, namely, Banti's disease, or a lower stage of this affection or splenic anemia. Lyon gives the following definition: "It is a progressive disease characterized by recurring attacks of hemorrhages, by diffuse pigmentation of the skin, by gradual enlargement of the spleen, by a secondary anemia, which is associated with a leukopenia and followed in a late stage by cirrhosis of the liver and ascites." In the fifteen cases reported by Osler, all had distinct pigmentation of the skin, and he placed great importance on this finding. Seven of his fifteen cases gave a history of repeated attacks of vomiting from the stomach and the rest hemorrhages from the bowel, mucous membranes, skin, et cetera. Sippey collected twenty-nine complete cases from the literature and states that the usual length of duration is two or three years but that West reported two cases which were not fatal until the seventh year.

Hence, in the case reported we have a typical one of splenic anemia of a duration of fifteen months. April 30, about 6:30 P. M., the patient vomited about a pint of brownish material, which gave a very strong occult test. He was placed in bed and proper medication begun. In

half an hour he vomited about a quart of bright red blood and continued vomiting blood until the end, which occurred the morning following. He was transfused about midnight, but with no result. The case had been referred to the surgeons for operation, and it is to be regretted that neither the surgeons nor pathologists had the liberty of entering the abdomen to confirm the diagnosis. However, the history, findings and nature of his death would strongly point to splenic anemia.

ENDOCARDITIS IN AN INFANT.

EARL L. WARD, M.D.

Department of Medicine.

THE patient, baby K., American, was born August 24, 1910. The father and mother were living and well, and there was no history of syphilis or tuberculosis.

The mother was a primipara and was in labor twenty-one hours. At birth the child weighed six pounds, eleven ounces, and was well formed but not robust. The child was fed on the breast for twelve days and during this time showed a steady gain. From the 12th of September, when it was weaned, until the 27th the weight remained practically stationary. Six days after weaning, the child was slightly jaundiced but the jaundice soon disappeared. The weight began to fall rapidly on the 22d, being accompanied by green stools and vomiting of all food as soon as it was taken. On the 5th of October the infant entered the Pediatric clinic. The child was very pale and of a brunette type. Panniculus was absent. The body was thin and cachectic, skin cool, anemic, dry and very inelastic. The face and hands were slightly cyanotic. The fontanelles were depressed. The eyes were deeply sunken, the lips dry and parched but the mouth was negative. The neck was thin, the superficial veins being somewhat prominent. The chest was well formed and examination showed that the heart was of normal size with no murmurs present. The abdomen and genitals were negative.

The child was placed on a weak formula with a whey basis and its stomach washed with a weak bicarbonate of soda solution before each feeding and was then fed by gavage. For these feedings it was not taken from the bed, its head being braced so that it could not be turned to one side. Under this treatment the vomiting gradually ceased, the stools improved in character and the weight became stationary. When seen the evening of the 10th of October it was noticed that the infant had a sighing respiration, the rate being somewhat increased. The extremities were slightly cold but the pulse was of a good character. On the 11th at 1:30 P. M. the child became markedly worse, the respiration becoming very rapid with an expiratory grunt but the temperature was normal. The lungs were negative with no areas of consolidation or dullness. The auscultation of the heart was unsatisfactory because of the expiratory grunt. The radial pulse was absent and the face and hands were cold and very cyanotic. The abdomen was negative. At 4:30 P. M. the expiratory grunt had disappeared but the respiration had become irregular and of a sternomastoid type. The cyanosis of the face and

hands had increased. Examination of the lungs showed bubbling and crackling râles in all portions but no areas of consolidation. The heart sounds were feeble and no definite murmur could be made out. The respiration became more and more irregular and ceased at 4:50 P. M.

Diagnosis: Cardiac failure with edema of the lungs.

Autopsy was performed by Doctor Dixon, two and one-half hours after death. Postmortem examination showed an infant with an under degree of nourishment whose length was fifty-one centimeters and weight two and six-tenths kilograms. Skin and mucous membranes were pale, body fat scant in amount. The anterior fontanelles were two by four centimeters. The abdomen was distended and on being opened the intestines were found to be dull, congested and filled with gas. Liver three centimeters below ensiform. No signs of umbilical infection, no thrombosis of hypogastrics. The intestines showed hyperplasia of the lymph follicles. All the abdominal viscera showed acute congestion but were otherwise negative.

The pericardial fluid was normal in amount and clear. The thymus was not enlarged. The heart was five centimeters long, four centimeters wide and two and eight-tenths centimeters in depth and weighed fifty grams. The left ventricle and auricle contained a small amount of fluid-blood with some clots. The pulmonary flaps were negative and there were no openings between the ventricles. The wall of the right ventricle was dull and shining but on the interventricular wall was a firmly adherent clot extending from the columnæ carnæ at the apex upwards over the undefended space but the tricuspid valve was not involved.

The pleural cavities were free from fluid and without adhesions. The left lung showed crepitation and contained some air but no nodules; no increased amount of fluid on section. The right lung was firmer than the left and the pleural surface showed congestion. The lower lobe was more compact and contained more fluid than normal, this being due to two large hemorrhagic infarcts, which extended longitudinally along the lung surface and except for a small strip intervening, occupied most of the lower lobe. Microscopic examination showed acute congestion of all organs, together with extensive fatty change. The cardiac thrombus was attached to the endocardium but showed no organisms and no evidence of organization.

While this case showed no symptoms of infection, the infant's age, seven weeks, and its condition of marasmus would render these slight. The symptoms of endocarditis in infants are slight and the temperature not marked, the first symptoms being generally that of embolic infarction. Thrombus formation in conditions such as this are often spoken of as marantic, but the great liability to infection as a terminal event in these cases and the small number of which are nonbacterial in origin, leads one to consider a terminal infection as the etiologic factor in this case.

DISCUSSION.

DOCTOR DAVID M. COWIE: The case reported by Doctor Ward this evening entered the Pediatric clinic during my absence last summer, conse-

quently I had no opportunity to see it. I have been interested in Doctor Ward's description of the case. There are valuable points to be gained from observing cases of this character. The cause of death is hard to determine. However, one would suspect some severe intoxication. Literature bearing directly on this condition is not easy to obtain, as Doctor Ward has found. In order to make any positive statements as to the exact pathology of this case one must make a careful examination of the microscopic sections.

AMERICAN PROCTOLOGIC SOCIETY.

STATED MEETING, JUNE 26 AND 27, 1911.

THE PRESIDENT, GEORGE J. COOK, M. D., IN THE CHAIR.

REPORTED BY LEWIS H. ADLER, JR., M. D., SECRETARY.

ABSTRACTS OF PAPERS.

HOW CAN AN INFECTED SIGMOID DIVERTICULUM BE THE CAUSE OF RETROPERITONEAL ABSCESS?

A. TIERLINCK, M. D., *Gand, Belgium.*

In the present state of abdominal surgery the appendix is frequently regarded as the chief cause of all abdominal troubles.

Recently numerous works have been published concerning sigmoiditis and perisigmoiditis. Diverticular abscesses are not as frequent as appendicular abscesses. It should be borne in mind that the sigmoid is often located in the right iliac fossa and diverticular abscesses may be mistaken for appendicular trouble.

In the young the sigmoid flexure is free and communicates with the retromesenteric and preaortic cellular tissues by the tissue of the mesocolon. Infection can be transmitted from the diverticula into the retroperitoneal cellular tissue by three means—the connective tissue, the lymphatic system, and the venous blood-vessels.

In adults the sigmoid is adherent to the posterior abdominal wall and in such cases there is another source of infection—an external one—due to the numerous anastomoses between the mesocolic glands and the parietal lymphatic system and between the sigmoid blood supply and that of the retroperitoneal region.

SOME OBSERVATIONS UPON THE SURGICAL ANATOMY AND MECHANISM OF THE COLON.

GRANVILLE S. HANES, M. D., *Louisville, Kentucky.*

Until comparatively recent years diseases of the colon and sigmoid, and the surgical anatomy of each received by scant attention. Recently, however, much valuable information upon this subject has been developed. Robert Coleman Kemp, in his work on "Diseases of the Stomach and Intestines," says that Doctor Joseph M. Mathews was the first to call attention to sigmoiditis and diverticulitis of the sigmoid.

The entire length of the large bowel *in situ* is found to be much shorter than when it is dissected from its attachments. An ordinary

thirty-inch colon tube has sufficient length to extend around the lumen of the large bowel of the cecum. While this has not been done in the living individual it has been done in the cadaver, and radiographs of the same are on record.

It is almost universally believed that ordinary flexible colon tubes can be manipulated in such a way as to traverse the entire course of the large bowel around the cecum. It has been proven by a number of investigators that such an achievement is impossible in the normal bowel. The average length of the sigmoid is about eighteen inches, and this being a floating portion of the large gut it is almost impossible for an instrument to pass beyond the middle half of the sigmoid. Should such be possible and the tube enter the descending colon it would be a physical impossibility for it to pass either the acute angle at the splenic flexure or the hepatic flexure. The failure of instruments to pass high into the bowel has been demonstrated by x-ray pictures.

The author has demonstrated the difficulty in passing any instrument through the hepatic and splenic flexures by introducing a thirty-inch number 20 French soft rubber catheter into the caput coli in an old appendicostomy case. The effort failed by any kind of manipulation to pass the catheter through these flexures. The tube was allowed to remain in the head of the colon for twenty-four hours with the hope that peristalsis would carry it around, but it failed. After manipulating the second time three hours later four inches of the catheter appeared through the anal opening.

Bismuth solution was forced into the head of the colon until the wall of the gut was thoroughly distended and then Doctor E. Bruce made a skiagraph. No regurgitation into the ileum occurred. This experiment was repeated a number of times with the results as above given. If the ileocecal valve allows no reflow into the ileum then exceedingly large amounts of water injected into the bowel are retained in the large gut, and not a part of the amount passed into the small bowel as is supposed by some.

In an old appendicostomy case, with the patient on the left side, coal-oil was poured into a colon tube that had been introduced three inches into the rectum. In six and one-half minutes the oil was flowing out of the appendicostomy opening. The amount employed was thirty ounces. This clearly demonstrates that liquids will easily pass around the entire colon without flowing through a tube. The point is also made that coal-oil is much less irritating to the mucosa than plain water or ordinary aqueous solutions.

The capacity of the large bowel *in situ* was measured by temporarily closing the opening of an appendicostomy case and allowing coal-oil to flow into the rectum as long as the patient can tolerate it. At a later date the same experiment was made by allowing oil to flow into the head of the colon. About the same amount of oil was received in each case. After making the same experiments in other cases it was decided that the average large bowel had a capacity, varying between fifty and sixty-four ounces.

The capacity of the rectum was ascertained by inverting the patient

and placing a colpeurynter at the junction of the sigmoid and rectum, just within the sigmoid. The colpeurynter was then distended with air until no fluid could pass into the sigmoid. Coal-oil was allowed to flow into the rectum till no more could be received. It was then drawn off with a catheter and the average amount was found to be between fourteen and seventeen ounces.

The inverted position (Hanes) is much to be preferred by both patient and operator when any kind of illuminating instruments are to be employed in the rectum or sigmoid.

HAVE WE AN IDEAL OPERATION FOR INTERNAL HEMORRHOIDS?

A. BENNETT COOKE, M. D., *Nashville, Tennessee.*

An ideal operation for internal hemorrhoids must embody the five following surgical principles and precepts:

- (1) Complete hemostasis.
- (2) Immediate closure of the operative wounds.
- (3) Preservation of the function of the parts.
- (4) Permanency of cure.
- (5) Due consideration of the factors of safety, simplicity of technic, time required for recovery, and the amount of postoperative discomfort.

The ligature operation violates principle two.

The clamp and cautery operation falls short with reference to the fourth class of principles in each of its several points.

The Whitehead operation violates principles one, three and five, and is, moreover, an unnecessary and unjustifiable procedure.

The operation by means of Earl's clamp is a modification of the Whitehead method and a vast improvement upon it, but is apt, likewise, to violate principle three.

Pennington's enucleation operation is open to criticism under classes one and five of the surgical principles. In spite of its ingeniousness, it is dangerous.

The clamp and suture operation described by the author fulfills all conditions and is entitled to be considered the most nearly ideal of any yet devised.

This new hemorrhoidal clamp is designed to facilitate the last named operation and is strongly recommended.

* * *

A symposium on constipation embracing seven different parts of subject was presented as follows:

ETIOLOGY OF CONSTIPATION.

HORACE HEATH, M. D., *Denver, Colorado.*

Two groups may be mentioned—miscellaneous and mechanical. Under miscellaneous, the author regards heredity as unimportant, but attention is called to the faulty instruction of children in certain families. The constipation of infancy is due to undeveloped muscles; and of old age, to inactivity and atonicity.

Under mechanical causes diet, sedentary life, abnormal positions, angulations, coloptosis, and hypertrophy of the rectal valves may be considered.

As predisposing diseases colitis, stricture, proctitis, fissure, hemorrhoids, fistula, polypi, enlarged prostate, and malignant growths may be mentioned.

PHYSIOLOGY OF CONSTIPATION.

SAMUEL T. EARLE, M. D., *Baltimore, Maryland.*

In reviewing the physiology of constipation in the symposium read before the American Proctologic Society, June, 1911, the author calls attention to the sensibility of the alimentary canal in connection with its bearing on constipation. It has been shown that the stomach and intestines are quite insensitive to tactile and thermal stimuli, but that the esophagus and anal canal are sensitive. The whole of the alimentary canal is, however, sensitive to distention, which produces at first discomfort and subsequently pain. The rectum appears to be more sensitive than the rest of the intestines to distention, so that a large fecal mass produces more discomfort when lodged in the rectum than in any other situation. As a result of this, the normal accumulation of feces in the pelvic colon is unaccompanied by any discomfort, whereas, the entry of feces into the rectum at once produces a sensation, which acts as a warning that defecation is necessary. The discomfort produced by the presence of a large mass of feces in the rectum is partly due to the pressure it exerts on the upper extremity of the sensitive anal canal. Prolonged retention of feces in the rectum leads to a blunting of the sensibility, so that comparatively little local discomfort is present in most cases of confirmed constipation. But in acute cases or cases of recent origin, in which the rectum is distended with feces much discomfort and occasionally severe pain is experienced. On the other hand, even a very large accumulation in the pelvic colon produces little or no discomfort in the intestine itself.

A large fecal accumulation in the rectum presses directly upon the anterior primary divisions of the third, fourth and fifth sacral nerve routes, as they emerge from the sacral foramina. It may therefore lead to neuralgic pain referred to the sacrococcygeal region. It is liable to cause suffering more from its constant presence than its severity; it is often as severe when the patient lies down as when he takes exercise, but some relief follows flexion of the lumbar spine. The muscles of the buttocks and back of the thigh, which receive a small part of their sensory and motor supply from the third sacral nerve route, may be the seat of similar pain. Neuralgic pain or parasthesia, in the form of tingling or a sensation of heat or cold may occur, in the course of the sciatic nerve, in the back of the thigh, and occasionally the sensation of cramp in the calf is produced. Pain is also occasionally felt in the hip-joint, it receives part of its nerve supply from the third sacral nerve. The roots which supply the muscles of the front of the thigh, are situated out of reach of the distended rectum, so that in the exceptional cases in which pain is produced by constipation in this situation, it must be due to pressure exerted by a fecal mass in the iliac colon on the anterior crural nerve; and is accordingly only observed on the left side.

That these neuralgic pains are probably due to the direct presence of

a large and hard mass of feces, on the sacral nerve routes, is shown by their instantaneous disappearance on completely evacuating the rectum by enemata, a form of treatment which was already advocated for sciatica by Columnius, of Naples, at the end of the eighteenth century.

Possibly the erections and seminal emissions, and the frequency of micturition and nocturnal incontinence, which occasionally result from large fecal accumulations in the rectum, are due to direct irritation of the third and fourth sacral nerves, and are not reflex in nature. The spasm of the sphincter and levator ani muscles, which has already been described as an occasional complication of the fecal impaction in the rectum, which occurs in constipation, may perhaps be in part due to pressure on the fourth sacral nerve routes.

Neuralgia of the testicles in men and dysmenorrhea in women are sometimes increased by the direct pressure in the rectum on the nervous supply of the testicles and uterus respectively.—Arthur F. Hertz, on "Constipation."

BACTERIOLOGY AND URINARY FINDINGS OF CONSTIPATION.

JOHN L. JENKS, M. D., *Memphis, Tennessee.*

The author has no new theories to advance, but wishes to express views of the importance of both chemical and microscopic investigation in connection with clinical proctology, and the value of these examinations in cases of atonic constipation.

Either finding, or eliminating, the presence of intestinal parasites, that are known to produce lesions in the intestinal coats and ports of entry of bacteria or their toxins is a matter of importance. The belief is entertained that the destruction wrought to the submucous structures, the infiltration of plastic material and the contracting, distorting, scarred portion of the bowel, as also the consequent destruction of, and interference with the secreting glands, their ducts and the nerve supply may become important factors in the atonic condition of some patients.

The author believes it is important to make microscopic examinations in all cases of this character, both of the crude and washed specimens, and of scrapings from the intestinal wall or from any lesion found in it. The urine is examined chemically, and microscopically, believing this important, owing to the relationship and association of diabetes, kidney insufficiency and diseases of the kidney with cases of atonic constipation.

These examinations of the urine aid in determining the proper course of treatment; especially is this true when indicanuria, casts and sometimes traces of albumin, indicate the vicarious overwork of the tired and irritated kidneys, as also the intestinal fermentation and coprostatic autointoxication, which results in some cases.

It is important also to examine the stomach contents after test meals have been given as these may furnish in some cases a clue to etiologic factors.

Blood examinations are quite important in determining the amount of opsonic resistance, as also for finding infections in the blood, which matters, by lowering the vitality may become factors in the atonic conditions present.

*PATHOLOGY AND DIAGNOSIS OF CONSTIPATION.*WILLIAM M. BEACH, M. D., *Pittsburg, Pennsylvania.*

Pathology of constipation is naturally considered under two general heads, namely:

- (1) Stasis due to altered secretions.
- (2) Stasis due to mechanical obstruction.

The first may be the result of neuroses, and acute fermentative indigestion, or a bacillary infection. The anerobes may attack the contents of the bowel or the gut wall itself, leading to varying degrees of inflammation in the colon, as ulceration, hypertrophic and atrophic catarrh. The colon impaired functionally or traumatically leads to stasis and consecutive inhibition of the fecal excursion. Such impairment further disturbs the physiologic lines of defense against the autointoxications, as—(a) The intestinal mucosa, itself; (b) The liver, and (c) The antitoxic glands.

Collateral with these phenomena in constipation, are such factors as cholelithiasis, hypochlorhydria, cholangitis and appendicitis, as altered secretions incident to coprostasis.

Mechanical obstructions to be reckoned with include:

- (1) Enteroptosis or Glenard's disease.
- (2) Gastropptosis.
- (3) Dilatation of the colon.
- (4) Certain extramural and intramural sources of obstruction, as pelvic tumors and displacements, nephroptosis, enlarged glands, intussusception, malignant disease, et cetera.
- (5) Acute angulation at the rectosigmoid junction, hypertrophy of O'Beirne's sphincter, and stiff rectal valves.
- (6) Disease in the anal canal.

Diagnosis resolves itself into an analysis of the above conditions; to differentiate acute or chronic obstruction and the ordinary functional stasis which may also be accompanied by the various forms of colitis.

*SEQUELAE OF CONSTIPATION, INCLUDING AUTOINTOXICATION.*ALFRED J. ZOBEL, M. D., *San Francisco, California.*

This paper treats of many of those conditions which seem to have their origin in chronic constipation with autointoxication. Experimental evidence has not as yet demonstrated that they actually do so, but close observation and clinical experience tend strongly to confirm the theory.

All constipated individuals do not necessarily suffer from those symptoms ascribed to autointoxication, yet in the writer's experience most patients with autotoxic symptoms are constipated. This may be without their knowledge, and they often deny in good faith that they are so; but proctoscopic examination generally proves the sigmoid and rectum to be loaded with fecal matter.

The proctoscopic observations made on a number of cases of hypertrophic arthritis are mentioned. In almost every instance the lower bowel was found filled with a fecal mass, although most of the patients positively stated that they had had an evacuation within an hour or two previous

to the time of examination. Thorough colonic flushings invariably brought about relief from pain, and in time marked improvement in their general condition.

These observations are in line with the theory advanced by various authors that arthritis deformans may be due to intestinal autointoxication.

Mention is made of the various muscular, arthritic, and neuralgic pains caused by absorption of toxins from the bowel. These are often misunderstood, and treatment instituted for rheumatism.

Congestion, irritation, and various disturbances, both functional and organic, of the uterus, tubes and ovaries in the female; the vesicles, urethra, and prostate in the male; and the bladder in both; may result from chronic constipation. This is due both to the proximity of these organs to the lower bowel and to their close physiologic relationship.

It is noted that albuminuria may arise from intestinal stasis, and mention is made of the opinion advanced by various clinicians that a nephritis may even be caused thereby.

The rôle of constipation with autointoxication as casual factors of epilepsy, neurasthenia, and various mental conditions, as claimed by certain well known and competent observers, is stated here without comment.

The influence of these conditions on the heart, blood-vessels, and the blood; and its effects on the eye, ear, nose and throat are dilated on in this paper, and in support of these statements quotations are culled from the literature that has appeared on this subject during the past five years.

The writer further briefly mentions a few more of those conditions that are supposed to arise from chronic constipation with autointoxication, and concludes by agreeing with the trite observation of Boardman Reed that, "when we except the exanthems, malaria, syphilis, tuberculosis, and the diseases caused by traumatism, by metallic poisons, and by a few other toxic agents or infections from without, practically all the remaining maladies which afflict us and cut short our lives are now directly or indirectly traceable to autointoxication."

NONSURGICAL TREATMENT OF CONSTIPATION.

DWIGHT H. MURRAY, M. D., *Syracuse, New York.*

Chronic constipation and its results is one of the worst of the foes to a healthful human race.

The writer has never known any medication to cure cases of constipation. As primary causes of all cases of constipation, carelessness, ignorance, and laziness are of first importance. The whole medical profession should teach their clientele how to care for themselves, and to train their children in order that constipation may be eliminated by educational and prophylactic methods.

Medicines for the use of constipated people have increased until their number is almost countless. Advertisements which extol particular cathartics exploited by this or that pharmacist, are well nigh bewildering.

The claim is made that all cathartics finally leave those who use them worse than before. The use of some drugs is not entirely interdicted, as there are cases where they must be used, but almost wholly for temporary

relief. A mistaken notion exists in the minds of the laity that the feces is composed largely of debris of food. This, however, furnishes only a comparatively small portion of the fecal mass, the larger portion being deposited in the large intestine as the ash resulting from the products of metabolism.

Various exercises, massage, deep breathing, climbing, rowing, electricity, et cetera are helpful in the treatment and cure of these cases.

Sigmoid injections of pure olive oil, castor oil, or medicinal paraffin oil are recommended as aids in the treatment.

Hours could be spent over the various drugs and methods in detail. After it all we are obliged to say that eternal vigilance as to regularity on the part of the patient must be exercised or a cure will not result.

The keynote of this paper is, education and regularity as to periodicity of the first daily stool. The whole profession has a profound duty to perform for mankind in an educational way for emancipating the race from this insidious foe.

THE SURGICAL TREATMENT OF CHRONIC CONSTIPATION.

LOUIS J. HIRSCHMAN, M. D., *Detroit, Michigan.*

Constipation is divided into two great classes; the one class being due to a lack of functional activity, that is, dietetic error, improper habit, neural or trophic influences. The other class, which some of us have been pleased to designate as obstipation includes all cases whose impaired activity is due to mechanical interference with the normal peristaltic movements and expulsive function of the bowel.

Obstipation, or obstructive constipation may be caused by:

- (1) The presence of any foreign body, occlusion, contracture, hypertrophy or accumulation in the intestinal canal.
- (2) Displacements, acute angulations, distentions, neoplasms, adhesions or compressions of the bowel.
- (3) Developmental defects and congenital deviations from normal.

Inasmuch as the surgical treatment of constipation, due to easily recognized local conditions, is obvious, they are dismissed with mere mention. Coloprotic constipation represents such a large percentage of cases of mechanical constipation that its discussion involves the most important field of surgery in the treatment of constipation. All patients with ptotic colons are not constipated, nor do all constipated patients suffer from coloptosis. There must be in addition to ptosis of the cecum, transverse or sigmoidal colons, a condition of functional inactivity due to atony of the bowel muscle.

Suspensions of ptotic colons by means of fixation by adhesions to the abdominal wall are unnatural and interfere with peristalsis. Restoration should be accomplished by shortening the natural support, the mesentery. Lateral anastomoses between the most dependent loops of ptotic bowel is sometimes indicated. Above all, massage, both abdominal and internal rectal, is of primary importance in restoring function, and should be used along with either dietary or hygienic measures to restore bowel function.

*INTESTINAL STRICTURE FOLLOWING ILEORECTOSTOMY. REPORT
OF A CASE.*

FRANK C. YEOMANS, M. D., *New York City.*

J. X., a man forty-six years of age, was always strong and well but suffered from severe constipation of many years standing. In October, 1909, an anterior sigmoidopexy was proposed for "prolapse of the sigmoid." Temporary relief followed, but three months later "peritonitis" developed. The same surgeon operated again, freed numerous adhesions, divided the ileum just proximal to the colon, closed the abnormal end and implanted the oral end of the ileum into the rectum. Relief of the constipation was prompt but when he first consulted me, in July, 1910, it had returned in an obstinate form with all the symptoms of a marked autotoxemia superadded.

The proctoscope passed easily, but no opening could be discovered in the rectum or the sigmoid. An excellent radiograph, by Doctor L. G. Cole, proved the colon and sigmoid to be unobstructed.

Concluding that the feces, following the path of least resistance, were accumulating in the colon, I did an appendicostomy at the New York Polyclinic Hospital, December 16, 1910. Irrigations through the appendix relieved all symptoms for ten weeks. Constipation and toxemia then returned, however, and exploratory laparotomy was performed on March 14, 1911. The ileum ran down into the left side of the pelvis and was lost in a mass of dense adhesions. A broad lateral anastomosis was made between the ileum, just above the adhesions, and the sigmoid. The patient reacted well from the operation, but developed a double pneumonia, eighteen hours later, to which he succumbed on the fifth day. The urine was suppressed the last twenty-four hours of his life. The bowels moved on the second day, and, thereafter, three or four times daily. At the autopsy no peritonitis was found. The specimen removed, consisting of ileum, sigmoid, and rectum intact, showed perfect union of the recent lateral ileosigmoidostomy. The remarkable feature of the old end-to-side ileorectostomy was that the opening was so constricted that it would scarcely admit a number 16 French catheter and physiologically amounted to a stricture.

The noteworthy features of this case are:

(1) Reverse peristalsis of the colon, evidenced by the large quantities of feces expelled by the irrigations through the appendicostomy.

(2) The radiograph was valuable in demonstrating a patent sigmoid and colon, thereby proving that the obstruction was in the small intestine.

(3) Failure of the proctoscope to reveal the site of the opening does not discredit the diagnostic value of that instrument but shows the extreme degree of contraction of the opening.

(4) The many actions of the bowel signify clearly that the physiologic function would have been permanently restored had the patient survived the pneumonia. The practical lesson derived from a study of the case is that lateral anastomosis is superior to end-to-side union, especially in the presence of inflammation.

[TO BE CONTINUED.]

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ORIGINAL ARTICLES.

MEMOIRS.

AN ADDRESS TO THE NURSES OF THE GRADUATING CLASS AT THE MICHIGAN ASYLUM.*

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I DESIRE to express my appreciation of the honor conferred upon me in being asked to address you this evening. Not only is it an honor but it is a real pleasure. For it affords me another opportunity of stating publicly, what many times during the year I express privately, the obligations I am under to trained nurses and how impossible it would be for me to practice my profession without them.

For many years I have been interested in this excellent training school. Some fifteen years ago I had the privilege of delivering some lectures here to the nurses. At that time, my friend, Doctor Edwards, was superintendent of the Asylum and I can remember the conversations we had as to the best course for a training school of this description. He felt his responsibility toward the young women who were giving two of their most valuable years to the acquisition of the principles of nursing and wanted to do the best he could for them. Since Doctor Edwards' untimely death, your school has been exceptionally fortunate in those who have controlled its policies. I trust that I may not be accused of having acquired the obstetrician's habit of telling the fond parents that the latest arrival is certainly the finest specimen he has ever seen, when I tell you that I am informed upon what I consider good authority, that your training school is the best of its kind in the state. To follow this up, since Michigan is the best state in the Union, and since there is no country in the world to be compared with this, you can easily estimate the rank of the school from which you are graduating this evening.

You are starting forth upon the practice of your profession at an exceptionally interesting period in the history of trained nursing. The struggling days of the profession in one sense are over. Trained nursing

*Delivered at Kalamazoo, Michigan, June 6, 1911.

is a part of the established order of things in this country and will always be permanent. This most of you naturally take as a matter of course, but some of us remember the time when the principle of trained nursing had to be fought for. My mind goes back to 1890 when I was superintendent of Saint Marks, now Butterworth Hospital, in Grand Rapids. The new hospital had just been opened and I was anxious that a training school for nurses be established. Nothing could be easier today. In fact, the training school of the new hospital is as much an integral part of the institution as its board of managers, or its medical staff. Not so twenty-one years ago. The president of the board of lady managers, good old soul, opposed a training school. She said she liked the old order of nurses better. They didn't object to the lady managers administering soups and jellies with their own fair hands to the surgical patients just after an operation. The new order of nurses were too young and good looking and in fact she, the president, would have none of them. It even became necessary to take the good old lady away on a rather extended vacation in order that the training school might be established in her absence.

But, as I say, those days are past and gone and newer problems have come to the front and demand solution. It is my purpose this evening rather than to admonish you to be always neat and tidy, to avoid frivolity and to carry out the physicians' directions to the letter, to consider some of these questions that are interesting the nursing world at the present time. Among them may be mentioned:

(1) The training furnished the nurse in small or special hospitals.

(2) State and national registration of nurses.

(3) The work of the trained nurse in special fields.

(1)—*The training furnished the nurse in small or special hospitals.*—Two motives may be said to influence young women to adopt nursing as a profession, the altruistic impulse to aid the sick and the suffering and the equally commendable desire to engage in an occupation which will furnish an honorable livelihood. Other things being equal, the true women desires to be of help to her fellows, just as the physician is oftentimes solaced in the absence of a fee in the thought that he has been of help to the sufferer. But such reflections do not pay the household expenses of either doctor or nurse, hence the problem after all resolves itself into the question of whether the occupation of nurse will give adequate financial return for the time and energy expended. If the recompense be adequate there will be plenty of trained nurses, their number being regulated by the law of supply and demand.

But there is another factor to the problem which some hospitals have been slow to appreciate, with the result that many are advertising for applicants to their training schools. Twenty years ago there were more applicants than training schools and the waiting lists were long. This made many hospitals very independent. They allowed the best applicants to enter the schools, sometimes housed and fed them well, oftentimes not; not infrequently gave them inadequate training and required the pupil nurses to perform services which were time-consuming and uneducative. Again came in the law of supply and demand, much to the surprise of some unthinking and arrogant managers of hospitals. The hospitals have increased in numbers all over the country until now there is hardly a town

of five thousand inhabitants which does not have its hospital. This meant more training schools and a chance for the nurse to choose her school. The training school with the wise management did not lower the standards for admission but took active steps to improve the instruction offered the pupil nurses. Also it saw that they were housed better and that their diet, exercise and working hours were arranged in such a manner, as to give the best efficiency to the hospital and the nurses. Just as in the case of the medical student, the day is not far distant when the nurse will not put up with insufficient instruction. She is fast learning to distinguish the true from the false. Woe to the training school or hospital management, which does not recognize this fact. Inadequate instruction means inferior pupil nurses. This in turn means unintelligent treatment of the sick and a hospital which is losing sight of the purposes for which it was established. Such an institution, public or private, will be left behind in the race and will have to give place to hospitals where more enlightened management prevails.

The special hospital and the small hospital, special or general, from the nature of things, must always exist. Only in exceptional cases, such as at the Mayo clinic at Rochester or in hospitals in connection with State medical schools, is it possible for large general hospitals to exist in small towns. Large hospitals carry with them the idea of large cities, and a large, poor and dependent population needing hospital care and attention. Yet in order that the smaller hospital may exist, it is absolutely necessary that it have its training school. For only the exceptional privately endowed institution can afford to employ graduate nurses. Training schools from a financial standpoint being necessary to these smaller institutions the question arises whether they can furnish the nurse with an adequate training. The nurse in the small hospital does her part. She gives her time, her two or three years to training, is industrious, studious, in other words she is willing to carry out her part of the contract. Is the smaller institution able to do its part? Assuredly yes, if it realizes its responsibilities and strives to give value received.

It is only natural that those who have to do with large hospitals and large training schools should feel superior to those who have received their training in smaller hospitals. But mere size is never an indication that this or that object or person is superior. We know now excessive size in certain people is due to disease of the pituitary body. Yet it is not uncommon to see such people very proud of their great stature, even feeling themselves rather superior to ordinary mortals. Take a university as an example. The question most frequently asked me in regard to Michigan is not what we are accomplishing, but how many students there are. Take another instance, I have known physicians who had been through a typhoid or diphtheria epidemic where they had attended hundreds of patients. Naturally they had a feeling of superiority because of this vast experience, yet some of them would have been far better off had they carefully observed and studied a single case. As far as their knowledge of the disease was concerned they had profited not at all by their experience.

So with large hospitals and training schools it is not the number of patients but the way they are used for instruction that counts in the training of a nurse. Of one thing we may be sure, no matter how large the institution, there will still remain types of disease the nurse has had no opportunity of observing in her patients. The fact that the medical

student may never actually see certain rare diseases in his undergraduate days, does not mean that he goes forth into practice badly equipped as a physician. The principles of medicine and surgery can be taught with material absurdly small when compared with the vast amounts in large institutions. In the one case it is utilized and systematically studied. In the other it goes to waste and is therefore more or less valueless from a teaching standpoint. In the same way a very small clinic will serve to instruct the nurse in the principles of nursing, and that after all is the most she can hope to learn in the short time she devotes to her training.

Again there are a number of disadvantages connected with large hospitals. The pupil nurse is only too often called upon to care for too many patients, so that she necessarily has to slight this or that one. Oftentimes her opportunities for nursing private patients are very few, with the result that she graduates without any adequate idea of how to conduct herself in private practice where she has to deal with the whims and fancies of just one sick patient. She too often emerges from her training a mere machine, a hospital product, apt to consider the sick world as made up of so many cases. The same may be said of hospital internes in large hospitals. They have seen many patients, for the clinics have been large, but the hospital patient has become to them a "case." They lack the human touch so essential in the sick-room and they often wonder why with all their knowledge the people persist in choosing some one else.

The smaller hospital must have in charge of its training school a superintendent who is thoroughly equipped for her work, one who realizes her responsibilities and will make the most of the opportunities at her command. Under such a head the small training school will turn out as good if not better nurses than the large schools.

The above applies equally well to special hospitals, large or small. Where sick people exist there lies the teaching material. It only remains to use it intelligently. If the graduate of the special institution feels that she would like to perfect herself in certain lines of nursing, she should be encouraged in so doing. Postgraduate instruction is always beneficial. Yet it is not essential if the nurse has been properly instructed. The strangeness of nursing in unfamiliar types of disease soon vanishes in the best postgraduate school in the world, that of private practice.

Yet, if there is to be postgraduate instruction it should be systematized so that the graduate nurse may not be at the mercy of unscrupulous hospitals who secure her services without adequate return. I believe there is now a move on foot to bring about an affiliation of training schools and hospitals, whereby it will be possible for different training schools to exchange nurses so that the latter will receive the advantage of studying during different periods of their course under different environments. Another suggestion is that the large memorial fund being raised in England in favor of Miss Nightingale be used to establish a large central training school where nurses with the proper preliminary course of training can matriculate for postgraduate study.

All these ideas are good and show that the nurses are alive to the situation. That some good system of postgraduate training for nurses will be evolved seems certain. However, the nurses should carefully review the history of postgraduate medical schools in America, so that

they may profit from it and not allow themselves to be used for the promotion of selfish ambitions.

(2)—*State and national registration of nurses.*—The progress of state registration in Michigan has on the whole been satisfactory when one considers the short time it has been in force. The nurses have been able to establish the legality of the registration act and have been able to show a former governor that illegal appointments to the board would not be allowed to stand. For a time at least the work of the registration board must be largely educational. Many nurses do not understand the purposes of the registration law and have failed to take advantage of it. The purpose of state registration is not alone to allow trained nurses to place R. N. ("registered nurse") after their names to signify that they have received a certain training. While no doubt this is, in a way, serviceable to the public the latter could have managed to distinguish between the trained and untrained nurse. The signal advantage of the law lies in the stimulus it will give to better education for the nurses. Only the graduates of training schools approved by the board, that is, where they came up to certain standards, are eligible for registration. This will certainly act as a spur to all hospitals, large or small, to come up to the standard and will soon work a wonderful change in training school educational methods.

The nursing profession should jealously guard their rights on the board and strenuously fight any attempts to minimize their authority by diminishing their numbers upon the board or the merging of the latter in some other state board. The initiative for reforms in training schools, as the experience of the past has shown, must come from the nurses themselves. Hence they should control the board and its policies.

National registration of nurses or registration of nurses through a national bureau, or uniform registration laws throughout the country are highly desirable. It is what the doctors have been endeavoring to accomplish for medical registration laws for some years. Uniform divorce laws also are highly desirable, yet so jealously do the different states guard their individual rights and so loath are they to depute any authority to the general government that the vagaries of divorce laws throughout the country are its disgrace and are almost criminal. It is within the range of possibility that upon the establishment of the new bureau of public health, which will come before many years, national registration in medicine and nursing can be brought about.

(3)—*The work of the trained nurse in special fields.*—Never before have there been so many fields for special work opening up to the trained nurse as at the present time. It may be of interest to mention briefly a few of them. First perhaps in importance comes the nurse as an anesthetist. When this was first proposed there were many misgivings expressed by certain members of the medical profession who have ever felt called upon to prove the superiority of man over woman. It was not fitting that the responsibilities of administering anesthetics be intrusted to a nurse who had, perchance, not spent as much time in the dissecting room as the physician. Legal questions might arise in case of accidents and many other questions of advisability were raised. In the meantime a few of us have gone ahead and trained our nurse anesthetists and have proved, at least to our own satisfaction, the feasibility of the plan. Nothing in my surgical work has proved more satisfactory

than the nurse anesthetist. If you will pardon a slang expression, she may be said to be always "on the job." In other words, her interests are entirely with the anesthetic, while with the doctor, the anesthetist's position is simply a means to an end, for ultimately he hopes to be a surgeon. Hence, try as he may, his attention will wander from his part in the operation to what is of far more interest to him.

It is also a part of my work to teach the medical student and the hospital interne the proper methods of administering anesthetics. This means frequent changes of anesthetizers and the breaking in of new men. This is absolutely necessary in a college teaching hospital, for medical students must be taught. But I turn always from this to the employment of the nurse anesthetist in my private work with a sigh of relief, because of the feeling of security her presence brings. No more worrying about the anesthetic, for you feel that it is in competent and experienced hands.

I predict that outside of teaching institutions, hospitals all over the country will soon be employing nurse anesthetists. With this demand will come the demand for special hospitals where the nurse can secure the requisite experience in this line of work. Obviously, not all nurses are suited, temperamentally and in other respects, for the position of anesthetist. To those nurses fitted for this work, it will prove a fascinating and profitable field in which to specialize.

The laboratory methods of diagnosis in medicine require so much time that it is becoming more and more the custom of specialists and physicians with large practices to train nurses for this work. Trained nurses are peculiarly fitted for this careful, painstaking kind of work and have been found to make excellent technical assistants. Such work is interesting, remunerative and is apt to lead to positions of further responsibility.

The army is coming to see the advantages of securing the services of the trained nurse. Each year more nurses engage in this kind of work both in this country and in the Philippines. Recently, the American Red Cross Society has, through affiliation with the Nurses' Associated Alumnae perfected an organization whereby in times of war or great emergency nurses can be furnished at very short notice. Every nurse should take an active interest in this work and whenever possible enroll herself as a member.

District nursing has been in existence for many years and has been perfected to a high degree. A new kind of district nursing has just been established in some of the eastern cities in connection with the hospitals, the social service work, where the patient after leaving the hospital is looked after, advised and efforts made to avert sickness in the future. Obviously, for such work the trained nurse is peculiarly fitted and it is expected that her active cooperation will be productive of excellent results.

Although I have only touched upon some of the fields of special work open to trained nurses, at least I have shown that if she tires of general practice, she has no need to lead a humdrum existence but can select new and perhaps for that reason, more interesting fields for her labors.

But I have detained you long enough with these rather desultory remarks. In conclusion, I know that I voice the sentiments of all your teachers and your friends when I wish you Godspeed and the greatest success in your chosen field. Work hard, for in good honest work we Americans find our greatest comfort and consolation. But work sensibly,

with long rests when you are worn out, for remember that for the most of you health is your greatest asset. Do not look for the rewards of life in the praise of your fellow men. Rather seek to be true to the high ideals of one of the noblest of professions, ideals which I trust you are carrying away with you this evening. Then, if you satisfy your own self, you will have made a success.

Ann Arbor, 620 Forest Avenue.

EXTERNAL PELVIMETRY WITH SPECIAL REFERENCE TO THE METHOD OF MEASURING THE OUTLET.*

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THE present status of pelvimetry is peculiar. In the obstetric department of every first-class medical school, pelvimetry is taught, and the men directly connected with such institutions make use of pelvimetry. The recent graduate, early in his career usually discards his knowledge of pelvimetry, and the majority of older practitioners have long since ceased to measure the pelves of pregnant women. What is the explanation of this condition? If you ask the general practitioner why he does not use a pelvimeter, usually he will tell you that nature delivers most children, and if not, he can apply forceps. It is true that the majority of children are delivered spontaneously, whether the pelvis be of normal size or somewhat contracted, but this does not excuse the physician from measuring the pelvis and knowing the actual condition. What would the profession think of a physician who never made physical examinations or tried to diagnose the true condition because he maintained that many diseases were self-limiting and would reach a cure in time? Authors of textbooks in obstetrics have been blamed for the present condition of pelvimetry. The fault is stated in the following quotation: "Many writers delight in giving the length of pelvic diameters in the living in millimeters. This is hypocrisy—to say the least—and such writers are partly responsible for the deplorable fact that pelvimetry is not as generally used by the general practitioner or by the obstetrician as it should be" (Ehrenfest).

It is a well known fact that two people cannot measure a pelvis and have their measurements agree accurately, but this does not destroy the value of pelvimetry. It is not important that the physician be able to measure the pelvis accurately, but that he be able to recognize and distinguish between normal and abnormal pelves. Occasionally, one will hear a practitioner say that he does not meet with contracted pelves in his practice. Dice, in his recent article on "Choice of Delivery in Moderately Contracted Pelves," explains this by saying: "Few men in general practice take more than half an interest in the question of pelvic deformities because they claim to see so few of them. They think them infrequent because they never look for them or never investigate the cause of many difficult labors and still births." As to the frequency of con-

*Read before the Clinical Society of the University of Michigan, July 12, 1911.

tracted pelves, all authors differ in their figures but a fair average would be from seven to eight per cent.

It is not the purpose of this paper to champion the cause of pelvimetry, its purpose and usefulness being too obvious, but rather to set forth some of the more recent views and methods of pelvimetry, especially of the pelvic outlet.

External pelvimetry is notoriously inaccurate as far as actual measurements are concerned, but it often gives one valuable information. The diameters usually included under external pelvimetry are the interspinous, intercrystal, bitrochanteric and external conjugate. The diameters of the outlet will be considered later.

INTERSPINOUS DIAMETER.—This measurement is taken between the anterior superior spines of the ilium and of itself is of little value. The bony spines are relatively broad and if the knobs of the pelvimeter are placed anywhere on their surface, a difference of from one to two centimeters is found. However, if the knobs of the pelvimeter are carried to the most outward projection of the spines and firm pressure is made, a difference of over one-half centimeter is rarely found. The interspinous diameter in normal pelves is from twenty-four to twenty-six centimeters.

INTERCRISTAL DIAMETER.—This measurement is taken at the widest point of the iliac crests, by bringing the tips of the pelvimeter firmly against the outer lip of the crests. In normal pelves this diameter varies from twenty-seven to twenty-nine centimeters. Like the interspinous diameter, the intercrystal of itself is of little value but there is a normal difference between the two measurements of from two and one-half to three centimeters. When the interspinous diameter approaches, equals, or is larger than the intercrystal, one is justified in suspecting a rachitic pelvis.

BITROCHANTERIC DIAMETER.—This diameter is the measurement between the trochanters of the femurs when the patient's thighs are closely adducted. Of all the external measurements this is the least accurate and of very slight value.

EXTERNAL CONJUGATE, OR BOUDELLOCQUE DIAMETER.—The external conjugate is measured by inserting one tip of the pelvimeter into the depression below the last lumbar vertebra while the other tip is held firmly against the median and upper part of the symphysis pubis. The anterior point is easily located, but the depression below the last lumbar spine is not always easily found. If a line be drawn between the iliac crests, a point taken three-quarters of an inch below the middle of this line will locate quite accurately the spine of the last lumbar vertebra. Another method of value in patients who show the dimples of Michaelis's rhomboid, is to take a point two and one-half centimeters above the middle of a line connecting the two lateral dimples. The external conjugate is one of the most important external measurements, though it is not of as much value as Boudellocque first thought. He asserted that by deducting three inches from this measurement, one would know the length of the true conjugate. Williams has in his collection two pelves with equal true conjugates but the external conjugates vary by five centimeters. Although the external conjugate is not an accurate index to the conjugate vera this

much can be said concerning it, that when the external conjugate measures twenty centimeters or more; one is safe in assuming that the true conjugate is not shortened. An external measurement of between eighteen and nineteen centimeters would lead one to further investigation, as about



FIGURES I and II.—Palpating the Pubic Arch.

one-half of all pelvises with these measurements show a slight shortening of the true conjugate. However, when the external conjugate falls below seventeen centimeters, in nearly all cases there is a contraction of the inlet.

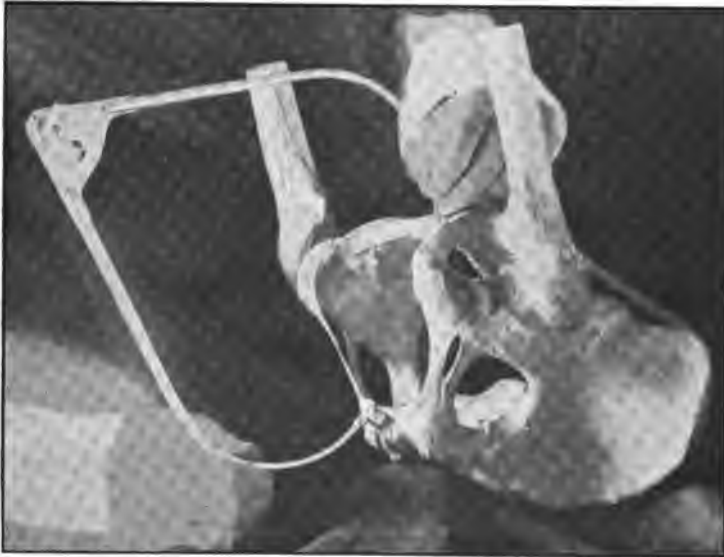
If one is to judge by the literature on the subject, routine pelvimetry of the outlet has been sadly neglected. Klien, in his monograph upon this subject, published in 1896, called attention to the importance of pelvic outlet contraction. Williams, in this country, has written more



FIGURES III and IV.—Measuring the Transverse Diameter of the Outlet.

upon this subject than any other author and was first to note the great frequency of funnel pelves among American women. In the typical funnel pelvis, the contraction is entirely at the outlet, the inlet being of

normal size. The diameter of the outlet usually measured are the bischial or transverse and the anteroposterior diameters. Klien has added to these the anterior and posterior sagittal diameters. The following method of outlet pelvimetry is that taught by Professor Williams of John Hopkins



FIGURES V and VI.—Measuring the Anteroposterior Diameter of the Outlet.

and has been adopted by Professor Peterson for the University of Michigan Maternity Service.

The patient is placed in the dorsal position, the buttocks being at the

edge of the table or the bed and the legs flexed. The width of the pubic arch and course of the ischiopubic rami is outlined by palpation with the inner surface of the thumb, the remaining fingers grasping the buttocks below the gluteal folds. (Figures I and II). The transverse diameter



FIGURES VII and VIII.—Measuring the Anterior Sagittal Diameter of the Outlet. of the outlet or the bisischial is next measured. For this purpose a special pelvimeter designed by Williams is used. The two measuring arms are equipped with rings which encircle the thumbs and the flat tips lie

in close apposition to the nails. The thumbs palpate the most widely distant portions of the two tuberosities and the distance is read off from a scale at the end of the pelvimeter. (Figures III and IV.) The antero-posterior diameter of the outlet is measured by having the patient's but-



FIGURES IX and X.—Measuring the Posterior Sagittal Diameter of the Outlet.

tocks brought well over the edge of the table or bed, in order to palpate the posterior surface of the tip of the sacrum. With one bulb of the pelvimeter at this point, and the other carried in the median line to the

lower margin of the symphysis, the reading is taken. (Figures V and VI). In case the coccyx is ankylosed, the posterior point must be taken from the tip of the coccyx. It is necessary to deduct one centimeter from the anteroposterior measurement to compensate for the thickness of the sacral tip. Klien has designated the distance from an imaginary line connecting the ischial tuberosities to the lower margin of the symphysis, as the anterior sagittal diameter of the outlet; likewise the distance from this same line to the sacral tip, he calls the posterior sagittal diameter. To measure the anterior and posterior sagittals, Klien devised a special pelvimeter which has been modified by Williams. It consists of a horizontal crossbar and a short straight arm connecting the crossbar and the scale, while a longer curved arm measures the diameters. The crossbar is placed to coincide with a line connecting the tubera, the tape of the measuring arm is carried forward to the lower border of the symphysis and the anterior sagittal diameter taken. (Figures VII and VIII.) In the same manner the measuring arm is carried to the posterior surface of the tip of the sacrum, the horizontal crossbar remaining in the same position. (Figures IX and X.) The scale shows the length of the posterior sagittal diameter plus the thickness of the sacral tip, so it is necessary to deduct one centimeter from this region.

The diameters of the outlet of a normal pelvis should measure, according to Klien who based his conclusions upon the study of one hundred and thirteen normal pelves, as follows:

Transverse	11 centimeters
Anterior sagittal	6 centimeters
Posterior sagittal	9.5 centimeters
Anteroposterior	11.5 centimeters

Williams measured one hundred and eighty-five normal pelves and obtained as average outlet measurements the following:

Transverse	10.5 centimeters
Anterior sagittal	5 centimeters
Posterior sagittal	7.5 centimeters
Anteroposterior	11.5 centimeters

During the last year at the University of Michigan Maternity outlet measurements have been taken on seventy patients with normal pelves. The average diameters were as follows:

Transverse	10.2 centimeters
Anterior sagittal	5.4 centimeters
Posterior sagittal	8.5 centimeters
Anteroposterior	11.3 centimeters

The importance of careful examination of the pelvic outlet cannot be emphasized too much. Williams has shown that in his clinic forty-four per cent of all pelvic contractions in white women occurred at the outlet. It is a fact well known to every physician who does obstetric work, that nature uses all the available space of the pubic arch in the birth of the head. The pubic arch normally forms an angle of about ninety degrees and the occiput comes to lie well up to this angle lessening the strain on the posterior part of the perineal body. When the pubic arch

is narrowed by a close relation of the tuberosities, the space normally available for the occiput cannot be used, and in order that the birth of the head be accomplished, most of the strain must fall posterior to the tuberosities. This gives rise to deep second degree tears, often third degrees tears and sometimes to fracture of the coccyx. The prognosis in outlet contractions does not depend entirely upon the narrowing of the pubic arch, but upon the length of the posterior sagittal in relation to the transverse diameter. For example, in a case where the transverse diameter measured eight centimeters and the posterior sagittal measured seven and five-tenths centimeters, spontaneous delivery would be unusual, while a large child has been born when the transverse and posterior sagittal diameters measured six and five-tenths and nine centimeters respectively. Without doubt many cases of difficult low forceps operations, large tears of the perineum and still-born children have as their explanation outlet contractions.

In this connection I wish to review the history of a patient who entered the gynecologic service this spring for repair of external and internal lacerations of a rather marked degree. She gave the history of having been pregnant three times, of carrying the children to full term, and of long difficult labors terminated each time by a forceps delivery and birth of a dead child. Upon examination of the pelvis the external measurements were normal for the inlet, but the pubic arch was markedly narrowed and the posterior sagittal was shortened to such an extent that birth of a normal child's head seemed impossible; and judging from her history it was impossible.

In the University of Michigan Maternity service during the past year we have had three cases of typical funnel pelvis. In the typical funnel pelvis the transverse diameter of the outlet measures eight centimeters or less, or the anteroposterior diameter measures nine centimeters or less, the inlet measurements being normal.

Case I.—Obstetric history number 551.—The first case was that of a young married woman, a primipara at full term. Her pelvic measurements were as follows: interspinous 22.5 centimeters, intercrystal 26 centimeters, bitrochanteric 30 centimeters, external conjugate 17.5 centimeters. The measurements of the outlet were: anteroposterior 9.5 centimeters, transverse 8 centimeters, anterior sagittal 7 centimeters, posterior sagittal 7 centimeters, pubic arch 70° . The labor lasted about twenty-four hours but the child, weighing six pounds, was delivered spontaneously. However, there was a large second degree tear extending down nearly to the rectum, and the child's head showed marked molding.

Case II.—Obstetric history number 597.—The second case was one of incomplete abortion at the fourth month and the case was only interesting from the point of the pelvic measurements. These were as follows: interspinous 26.5 centimeters, intercrystal 31 centimeters, bitrochanteric 32 centimeters, external conjugate 18.5 centimeters. The measurements of the outlet were anteroposterior 11 centimeters, transverse 8 centimeters, anterior sagittal 5 centimeters, posterior sagittal 9 centimeters, and pubic arch about 70° .

In Case I the prognosis was unfavorable, for with a transverse diameter of eight centimeters the posterior sagittal measured only seven centimeters. However, the small size of the child explains the spontaneous delivery. In Case II the prognosis would be favorable for the long posterior sagittal of nine centimeters would compensate for the transverse of eight centimeters.

Case III—Obstetric history number 584.—We have in the Maternity service at present a young woman in the eighth month of pregnancy who has pulmonary tuberculosis and whose pelvis is of the typical funnel type. The distance between the tuberosities is eight centimeters and the posterior sagittal diameter measures seven centimeters. The question of outlet contraction is of great importance in her case, for vaginal Cesarean section, version and extraction has been mentioned as a possible means of delivery without submitting the patient to the strain of a long, hard labor. However, if the outlet is contracted, could the after-coming head be delivered if the case goes on to full term?

As a fairly typical course of labor in a case with moderate outlet contraction, I wish to briefly relate this history.

Case IV.—Obstetric history number 526.—The patient, a young white primipara, was examined and found to have normal inlet measurements; however, the pubic angle was narrow and the transverse diameter measured eight and five-tenths centimeters. The posterior sagittal was of normal length. On December 26, 1910, at 4 A. M. the patient went into labor. The progress was normal and at 6:45 P. M. the membranes ruptured. At 11 P. M. slight bulging was noticed but at 2:30 A. M. on December 27 the head, having been on the perineum two and a half hours without any appreciable advancement, and the patient's pulse being 105, her temperature 100°, it was thought advisable to terminate the labor by the application of forceps. A low forceps operation was performed. The head was advanced with great difficulty and at 3:15 A. M. the child was delivered and found in excellent condition. The mother had a large second degree laceration.

Cases I, II, and III are examples of true funnel pelvises, there being no contraction of the inlet. The following case is a good example of a generally contracted funnel pelvis.

Case V.—Obstetric history number 601.—A white school girl, aged fourteen years, admitted in July, 1911, in the second month of pregnancy. The external pelvic measurements are as follows; interspinous 21 centimeters, intercrystal 24 centimeters, bitrochanteric 27 centimeters, external conjugate 16 centimeters, anteroposterior of the outlet 9.5 centimeters, biischial 8 centimeters, anterior sagittal 4.5 centimeters, posterior sagittal 8.5 centimeters, pubic angle about 75°.

In this case all of the external measurements of the inlet are shortened but the relative lengths are maintained. The distance between the tuberosities is a scant eight centimeters.

These brief histories are sufficient to show that outlet contractions are not uncommon as the cases were collected from the last eighty patients admitted to the maternity service.

TRANSACTIONS.

CLINICAL SOCIETY OF THE UNIVERSITY OF MICHIGAN.

STATED MEETING, JULY 12, 1911.

THE PRESIDENT, REUBEN PETERSON, M. D., IN THE CHAIR.

REPORTED BY JOHN WILLIAM KEATING, M. D., SECRETARY.

READING OF PAPERS.

EXTERNAL PELVIMETRY WITH SPECIAL REFERENCE TO THE METHOD OF MEASURING THE OUTLET.

DOCTOR HOWARD H. CUMMINGS read a paper bearing this title. (See page 279.)

DISCUSSION.

DOCTOR GEORGE KAMPERMAN: There are many things to be considered in every case of difficult labor. First, there is the size of the pelvis. As stated tonight, we know that in measuring the pelvis we are liable to certain errors. The personal equation counts for a great deal. No two men take measurements exactly alike and therefore all measurements are not absolutely correct. But we can get fairly close to it. The conjugate vera, which is ordinarily the most important, cannot be measured at all.

Then there is the size of the child, about which we know still less, and about whose measurement we can do scarcely nothing. Another uncertain factor is the strength of the uterine muscle. Hence of the three factors concerned, two are practically beyond our estimation, and the third one can be estimated only approximately.

I was interested in reading Doctor Williams' last paper on funnel pelvis. He states that on one occasion while preparing his hands for the application of forceps, with the patient in the dorsal position with the thighs sharply flexed upon the abdomen, he had barely time to finish the preparation and catch the head as it was expelled spontaneously. We may have had such experiences and wondered at the cause of it. Doctor Williams' investigations show that when the patient is in this position with the thighs sharply flexed upon the abdomen, the outlet is enlarged one or two centimeters, due to the rotation outward of the iliosacral synchondroses. With this in mind when he confines patients with funnel pelvis he puts them in the modified Sim's position, and flexes the thighs very closely upon the abdomen. If this will make difficult labor easier, it seems to me it would be good to use it, even in normal cases, especially since there is no real objection to it, and also since it has so many other advantages.

It is very hard to estimate just what a given patient is going to do. A patient for whom we prophesy a hard and difficult labor may be confined most easily, while the one for whom we predict an easy labor may have serious dystocia. If we could get at the cause we could tell more easily, but at the present time we can get no nearer than the approximate

measurements of the pelvis. The other factors we must leave undetermined.

DOCTOR REUBEN PETERSON: It is only by such careful work as Doctor Cummings has shown us here this evening that our knowledge of contracted pelves in general and contraction of the outlet in particular can be added to and the proper treatment instituted. The reason why the vast majority of women go through labor safely is not because of any carefully thought out campaign by the physician but because most cases are normal. If the case be abnormal, that is, the pelvis be contracted the physician usually is unaware of the fact and the patient gives birth to the child or not dependent upon the degree of the deformity.

Doctor Cummings' paper explains many cases seen in private practice, inexplicable except through knowledge of the existence of contraction of the outlet. Such cases are those of delayed second stage with head low in the pelvis and not infrequently complete rupture of the perineum either with or without forceps.

I am glad to see that Doctor Williams is finding out the advantages of delivery with the patient on her side. This position has been favored here for the past ten years and has been found more satisfactory than the dorsal position not only where there is a disproportion between the head and the pelvis but in normal cases.

Evidently funnel pelvis is not as common in our clinic as at Baltimore. Still, the number of examinations is small and the percentage may change in the next one hundred cases.

It may be stated that in the case of funnel pelvis cited by Doctor Cummings, spontaneous labor would have been impossible except with a small child. Hence, the size of the child always is an important part of the problem and since it is more difficult to estimate its size than the size of the pelvis, even the best studied case may be open to doubts.

The time is coming when the profession will be so educated in obstetric matters, that the abnormal cases will be recognized before labor and referred to the hospital, just as cases of appendicitis are now. It is simply a matter of education, for when more accurate knowledge of abnormal obstetrics is the common property of the profession, physicians will refuse to take the responsibility in certain cases.

DOCTOR HOWARD H. CUMMINGS (closing the discussion): In regard to the number of cases of funnel pelvis in our clinic, I was rather surprised to find that we had had three cases of typical funnel pelvis and one case of generally contracted funnel pelvis, in the last ninety cases admitted to the Maternity service.

Williams in his last article on funnel pelvis relates two very interesting cases in which funnel pelvis was treated by pubiotomy. The fibrous union between the sawed ends of the pubic bone allowed sufficient enlargement of the outlet, to permit of a spontaneous delivery at a subsequent confinement.

REPORTS OF CASES.

REPORT OF CASE OF HIP-JOINT DISEASE OF TWO YEARS' STANDING.

CHARLES L. WASHBURN, M. D.

Department of Surgery.

I WISH to report a case of advanced hip-joint disease. The condition is not uncommon, some fifty cases of this nature presenting themselves at the University Hospital for treatment each year. The case, however, is noteworthy, because of the lack of continuous treatment. The history is as follows:

The patient is a boy, aged eleven years. He has never had any serious illness previous to the present trouble. His father is living, aged thirty-three and has "chronic bronchitis." His mother is living, aged twenty-nine, and is in fair health. He has a sister seven years of age wearing a Thomas splint for right hip-joint disease of two years standing. A paternal aunt died of pulmonary tuberculosis some four years ago and up to the time of her death often came in contact with the patient. His paternal uncle has a cured tuberculous hip.

The patient's present trouble began in December, 1909, when he began to limp, although he had no pain at that time. Within a few weeks he began to have pain at night and a short time later there was constant pain in the left knee and hip. A marked flexion deformity developed. The patient was then put to bed and a Buck's extension splint applied in the line of deformity, with a carrying weight of four pounds. The extension was left on three months and at the end of that time the flexion had nearly disappeared and the hip was without pain or tenderness. The patient was then taken, without any supporting appliance, one hundred miles to an orthopedic specialist, who applied a plaster hip splint, and sent the patient home on crutches with the right shoe elevated. There was no return of the pain and the patient gained in weight and slept well. Three months later the splint was removed by the home physician and the patient allowed to use the limb. Two days later the pain returned and a small red area developed just below the great trochanter. This area grew larger and a week from the time of the removal of the splint, an abscess was incised and two ounces of seropurulent fluid evacuated. This sinus still persists and discharges slightly. The flexion deformity again developed. The patient came to the University Hospital in January, 1911, but did not remain for treatment at that time. He entered the hospital June 25, 1911, and a Thomas splint was fitted in the line of deformity, with the proper amount of elevation of the right shoe. The patient is now about on crutches and will be sent home to return once in six weeks for observation and readjustment of the splint as the deformity lessens.

The unwritten law for successful treatment of hip-joint disease is long continued and unbroken rest for the diseased joint. In the above case both of these points were overlooked. The treatment did not continue over sufficient time for a perfect cure and was rendered useless by the spasmodic nature of its application.

Both the lay and medical man still possess a peculiar inertia in considering these cases, and do not seem to realize the diagnostic importance of a painless limp and that a large percentage of cases when taken in this stage can be cured without marked deformity.

**DEMONSTRATION OF THE TECHNIC OF THE WASSERMANN TEST—
ORIGINAL AND NOGUCHI METHODS.**

SOBEI IDE, M. D.

Department of Psychiatry.

BEFORE demonstrating to you the above methods I would like to say that normal blood serum has two components, a complement and an amboceptor. The complement is always present in fresh blood serum, but the amboceptor is developed by repeated injections of red blood cells. The function of the amboceptor is to prepare or sensitize the erythrocytes for the attack of the complement; the function of the complement is to dissolve the sensitized erythrocytes. The amboceptor alone cannot dissolve the cells and the complement, likewise, is incapable of action if the cells are not prepared for it. The amboceptor is produced artificially by injecting sheep's red blood cells repeatedly into some other species of animal. An artificial amboceptor is used in the Wassermann test. Wassermann's original method was to inject a sheep's red blood corpuscles into rabbits five times at intervals of four or five days. The rabbits were bled nine days after the last injection. The amboceptor thus produced is called antish sheep amboceptor because it is highly destructive to the red blood cells of the sheep and to these only. Noguchi introduced a modified method in which he uses human blood cells instead of the blood cells of the sheep. When human blood cells are used the amboceptor is an antihuman amboceptor. The following will serve to illustrate the mechanism of the hemolytic system used in either the Wassermann or the Noguchi methods of diagnosis.

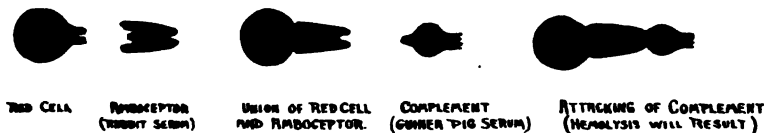


FIGURE I.—The Hemolytic System.

In the Wassermann method two more substances are added to the above hemolytic system. One of these is the serum of the patient and

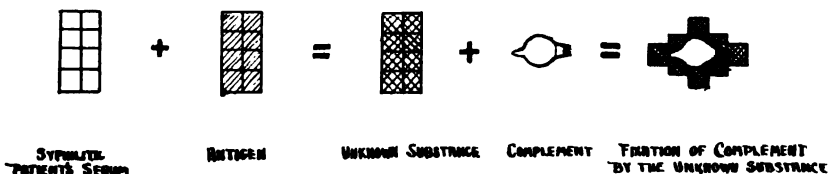


FIGURE II.—Fixation of Complement in Wassermann Test.

the other is what is known as antigen. Antigen is the lipid substance which is extracted from either syphilitic or nonsyphilitic organs such as

liver, heart, kidney, et cetera. When the patient's serum contains in it a syphilitic antibody, the latter combines with antigen and produces an unknown substance which prevents the action of the complement.

In case of a positive reaction hemolysis does not take place because the complement has become powerless; on the contrary if the patient's serum is negative hemolysis does take place.

DISCUSSION.

DOCTOR JAMES G. CUMMING: Doctor Ide has given us a very interesting demonstration which shows that he has given considerable attention to this complicated reaction. Of course the reaction requires very accurate technical knowledge and can only be done correctly by one who has given it his special attention. I would like to call your attention to the fact that the so-called Noguchi modification simply means the use of a different hemolytic system and the use of the impregnated paper slips. Noguchi did not change Wassermann's original idea by making use of the human hemolytic system nor did he make the test more simple. It would seem that Noguchi is not deserving of any great credit for this simple modification and yet one hears many references made to the Noguchi modification, which as a matter of fact means Noguchi's paper slip modification which has long since fallen into disuse. Wassermann certainly deserves all the glory for the discovery and perfection of this most valuable test. We have changed the original technic of the Widal reaction, the various special methods for staining, et cetera, but they still retain the names of their original discoverers. I think we are all indebted to Doctor Ide for his instructive demonstration.

DOCTOR MARK MARSHALL: Such a demonstration of the Wassermann reaction looks very attractive to the practising physician who is in the habit of doing scientific laboratory work, but I have seen enough of it to know that it should not be attempted save by those who are devoting a great deal of time to this kind of work. It is not a method for the general practitioner nor for the amateur worker, for it requires long experience and the testing of a large number of sera in order to judge the reaction properly. Here we have a very definite reaction evidently, and it makes the method look very simple. On the other hand there are many border-line reactions which make it difficult and unless one has had a large experience it is impossible to arrive at a definite conclusion. We should send our material to a man who has had the necessary experience and these tests should not be attempted by the general practitioner whose time is mostly taken up with other lines of work.

A CASE OF TUBERCULOSIS OF THE KIDNEY WITH NEPHRECTOMY.

DANA CECIL POST, M. D.

Department of Surgery.

THE patient is aged fifteen and by occupation a school girl. She comes to the hospital on account of frequent and painful micturition. This began July, 1910, with an increased desire to empty the bladder. The patient had to get up as many as three or four times in the night,

and micturition was as often as every two or three hours during the day.

The patient consulted a physician at this time on account of a progressive pallor. This was the first time that blood was noted in the urine. In August, 1910, the patient had a slight fever. Just how long this continued is not definitely known. However, the condition continued without much change until December, 1910, when the patient noticed a throbbing sensation in the left side which would last for a day or more and then subside. Three such attacks occurred in three weeks and during this time she lost eight pounds.

When brought into the Surgical clinic, January 9, 1911, an examination of the urine showed tubercle bacilli to be present. A cystoscopic examination of the bladder was attempted, but the bladder walls were in such a condition that no landmarks could be made out. The trigone was obscured by a covering of pus. The bladder held about five ounces.

A variety of treatment was now instituted; antipyrin, ten grains to two quarts of sterile water to stop the hemorrhage from the bladder walls, as well as a two-per-cent solution of iodoform in olive oil for the cystitis. By these means the condition of the bladder was so improved that she became an out-patient about February 1 and returned daily for bladder treatment. But after twelve weeks of such treatment the cystitis still continued. At the end of this time cystoscopic examination still failed to locate the ureters.

The patient was now referred to the Medical clinic for the tuberculin treatment, but three weeks' treatment failed to improve the bladder condition.

On May 9 a double kidney aspiration was made to see if one or both kidneys were involved. Both kidney pelves were aspirated, and the sealed samples were sent to Professor Aldred S. Warthin for diagnosis. Pus, blood, and cocci, but no tubercle bacilli were found in the urine from the left kidney. The urine from the right pelvis was negative.

On June 1 after both exploratory incisions had been allowed to close so as to guard against any infection of the right kidney, the left kidney was removed.

After the nephrectomy the patient continued to pass her urine every half to three quarters of an hour, so attention was directed to the tuberculous process in the bladder. The treatment consisted in two applications of fifty cubic centimeters of a six per cent solution of carbolic acid injected into the bladder and retained two or three minutes, then allowed to return through the catheter. These injections were three weeks apart.

July 9, 1911: The patient now gets up once a night, and holds her urine over three hours during the day. The irrigating fluid returns clear from the bladder. The patient is able to walk around and feels very well. The incisions are completely healed.

Not more than one exploratory puncture is necessary to establish a diagnosis of tuberculous kidney, since in all cases where there is a tuberculous focus in the kidney, Koch's bacillus can be found in the urine from the kidney pelvis. Hence such a puncture should be made when the

diagnosis is doubtful, since there is practically no danger as far as the mere puncture of the kidney is concerned.

There was formerly considerable discussion over the disposal of the ureter almost always infected in tuberculous kidney. Therefore, to amputate close to the bladder leaves a stump which suppurates into the perivesical tissues and gives rise to deep seated abscess. If the ureter is not shortened but left as long as possible, it will surely drain through the wound, a much more convenient place to deal with suppuration.

It was also formerly thought that tuberculous cystitis might be primary in the bladder but it has been proven quite conclusively that in these cases there is always a primary focus in the kidney and that the bladder infection is always secondary to tuberculosis of the kidney.

DISCUSSION.

DOCTOR MARK MARSHALL: One phase of this case particularly interested me. It was interesting to notice that this girl was perfectly healthy in appearance and actually gained weight while her disease progressed. I know that in the treatment of pulmonary tuberculosis, when a patient gains in weight, even though the gain be very slight, it is regarded as a favorable sign. I think that this often serves as a false guide in the treatment of pulmonary cases, for it often happens that when a patient has made a good gain in weight he is discharged as cured, whereas, a careful examination may reveal evidence to the contrary.

DOCTOR REUBEN PETERSON: Cases of tuberculosis of the kidney are apt to be of long standing and always are difficult to cure. Where it is difficult and often impossible to catheterize the ureters because of the condition of the bladder, it is usually possible to decide which kidney is affected through the presence of pain or tenderness in one or the other side.

We must decide whether to open and drain a tuberculous kidney, or to remove it. Fenger was a great advocate of incision and drainage, claiming that nephrectomy was seldom necessary. I must confess that I have had very little success with the former treatment and have usually found it necessary not only to remove the tuberculous kidney but the ureter itself as far as the bladder.

While the process in the bladder is apt to continue after the removal of the diseased organ, after a time it clears up if the other ureter and kidney be not affected.

DOCTOR GEORGE KAMPERMAN: I remember hearing Doctor Loree read a paper a year or two ago in which he made the remark that tuberculous cystitis could be cured and the symptoms still persist. This was explained by the fact that although the infection could be gotten rid of, the excessive scar tissue in the bladder wall would still keep up the frequent micturition. Since this is the case, it would be difficult to tell whether a patient in such a case was ever cured. He would probably always have the symptoms even though the cystitis were cured, and since there is always the possibility that there may be some disease lurking there, it would be very hard to give any prognosis at all, especially for tuberculous patients.

AMERICAN PROCTOLOGIC SOCIETY.

STATED MEETING, JUNE 26 and 27, 1911.

THE PRESIDENT, GEORGE J. COOK, M. D., IN THE CHAIR.

REPORTED BY LEWIS H. ADLER, JR., M. D., SECRETARY.

ABSTRACTS OF PAPERS.

[CONTINUED FROM PAGE 272.]

CANCER OF THE RECTUM.J. RAWSON PENNINGTON, M. D., *Chicago, Illinois.*

I take it we are all agreed as to the increasing frequency of cancer. At least it seems no other conclusion can be drawn from the following figures: According to the Twelfth United States Census, cancer appears to have increased 12.1 deaths per 100,000 population in the previous decade. In Great Britain, so we learn from the work of Roger Williams, the deaths from cancer increased from 177 per million in 1840 to 885 per million living in 1905. Williams points out that while the population barely doubled from 1850 to 1905, the mortality from cancer increased more than six fold. Nor is the increase confined to the United States and Europe, it holds good for Japan, India and even for uncivilized countries. In short, cancer is one of the several diseases which is apparently increasing, by leaps and bounds, in spite of our boasted progress in medicine, surgery and hygiene. Apart from the increased prevalence, the present death rate from malignant diseases is something dreadful to contemplate. Our anxiety in regard to malignant disease of the rectum is pardonable when we reflect that a good proportion of cancers involve this region. Williams found that 9.6 per cent in males and 5.3 per cent in females were located in the rectum. Is there anything that can be done to check this foe? The writer believes there is, and that this society may be made a powerful factor for good in such a crusade. In Germany a similar crusade has been started against cancer of the uterus by Winter's agitating the subject both among the profession and the laity. It is estimated that the number of cases of inoperable cancer of this organ has been reduced over thirty per cent as a result of calling attention to the early symptoms. Of the 2914 cases of rectal cancer in the male referred to by Williams 2592 patients were over forty-five years of age and 2180 of the 2533 female patients. In the male sex again the average age, at which the onset was noted, was 49.7 years, the minimum being 16.75 and the maximum 74; while the female sex the average was 50.4 years with a minimum 21.8 and a maximum of eighty-eight years. This brings me to the crux of my argument, that every person who has reached the so-called "cancerous age" should be examined periodically for evidence of commencing carcinoma not necessarily of the rectum alone, but in the female for example, of the uterus also.

In one hundred and twenty resections of the rectum for malignant disease William J. Mayo observes: "It is an unfortunate fact that, in the majority, cancer of the rectum is not recognized in time to obtain a radical cure." I said a moment ago that cancer in the beginning is a

local disease. This granted, then early and thorough removal must lead to a cure. It has been shown that a large proportion of malignant growths originate in scar tissue. In cancer of the stomach, for example, the Mayos found that no less than sixty-two per cent showed evidence of a previous ulcer. In rectal cancer patients frequently give a history of previous operations on the part. Does the cancer occur in the scar left from an operation for hemorrhoids done by one of the commoner methods—ligature, clamp and cautery, or some other technic leaving much scar tissue and sometimes stricture? May it not be occasionally engrafted on the scar following the usual incision method of operating for fistula? Here is a suggestion for us in our own work, secure smooth healing by resorting only to such procedures as leave the minimum of cicatricial tissue, hence, the least possible nidus for possible mischief in the future. With the cooperation of the public it seems to me we should learn much about cancer in the early stages. To educate the public we must—as has been well said—"organize, systematize, deputize, energize, supervise and economize." The field is broad and the opportunity is at hand. Shall we grasp it?

MALFORMATION OF RECTUM AND ANUS, WITH REPORT OF CASE.

DONLY C. HAWLEY, M. D., *Burlington, Vermont.*

The facts of modern embryology explain a majority, but not all developmental defects of the rectum and anus.

M. B., female, aged four weeks, came under my observation in April, 1910. She had an imperforate anus, the rectum opening into vagina in the upper half of the rectovaginal septum. The opening, one-half by one-eighth inch in size, the longer diameter transverse, was evidently supplied with sphincter, as the child had three or four well controlled movements daily. Anal depression was present and the vulva and vagina were normal, except as noted. The presence of uterus was normal or otherwise not demonstrated. There was no distention of rectum, no impulse and no prominence in perineum. The child was well nourished and otherwise normal. Operative interference postponed. The child is at present well, and is thirteen months old and weighs twenty-two pounds.

While this defect is sometimes seen, many cases reported, as atresia ani vaginalis are no doubt in reality imperforate anal canal with vulvar outlet, a malformation admittedly of common occurrence.

Cases in which intestine opens well up in vagina are not accounted for on embryologic grounds, the two structures being embryologically dissimilar and independent.

PRURITUS ANI, WITH REPORT OF CASES.

DONLY C. HAWLEY, M. D., *Burlington, Vermont.*

In this discussion I do not refer to cases due to intestinal parasites, errors in diet, et cetera, in which the pruritus is relieved by proper attention to the causative condition, nor so much to the symptoms as to the pathologic condition of the skin and nerve endings, which condition is pathognomonic. The nearly constant local cause of pruritus ani is

abrasion and ulceration of the anal canal, accompanied by blind sinuses underneath or fissures in the mucocutaneous lining. Further, some cases are associated with chronic proctitis, which may be a factor in producing or increasing the anal abrasions or ulcerations.

The treatment I have adopted is as follows: With the patient well anesthetized, the anal canal is dilated, and the ulceration, together with the sinuses and fissures, are thoroughly cauterized with the Paquelin cautery, and also the entire area of chronic dermal inflammation. My aim is to destroy ulcerated areas, the thickened and altered skin and the pathologic condition of the terminal nerve fibres.

Case I.—S. H. E., aged sixty-two, came under my observation June, 1908. He had suffered with rectal troubles for forty-five years. Twenty years ago he was operated on for fissure or fistula—was not certain which. He has had almost intolerable pruritus for eight years, and for the past year it has been so constant and unbearable, especially at night, that he has become a nervous wreck, and has lost forty pounds in flesh and has been unable to continue his business.

Diagnosis: Chronic pruritus ani. The skin was inflamed, soddened and thickened over a large area about the anus, with many deep cracks, and four or five ulcerations and abrasions in anal canal.

Treatment as outlined. Result, cure and no return up to present time.

Case II.—W. A., male, aged thirty-eight. History of pain in rectum for twenty years, and of severe and intolerable pruritus.

Diagnosis: Chronic pruritus ani.

There was a large ulceration in anal canal and three or four blind sinuses, with an area of white brittle and infiltrated skin with large cracks about anus.

Operation, same as in Case I. Result, cure.

Other cases less severe have been operated upon during the past three years with satisfactory results. The treatment outlined is not new nor original, having been advocated by Mr. W. Mitchell Banks, and practiced by Mr. Fred C. Wallis. Ball's operation is designed to render anesthetic the skin over the undercut area. The operation described accomplishes the same end and also destroys lesions in anal canal. The former operation has resulted in extensive sloughing. To the latter no such danger attaches.

SYPHILIS OF THE ANORECTAL REGION.

LEWIS H. ADLER, JR., M. D., *Philadelphia, Pennsylvania.*

I wish to relate the history of two cases of syphilis in which no outward visible effects of the patient's grave condition existed, except about the anus. In both instances, the anus was surrounded by syphilitic condylomata; the parts were bathed in a fetid seropurulent discharge and the patients' mouths were affected with mucous patches. In one case the patient was markedly improved by the use of salvarsan and the other one improved under the ordinary mercurial treatment, but disappeared from observation before a cure could be effected.

A consideration of the usual manifestations of the disease as affecting

the localities under consideration, indicates: That the primary lesion, always a chancre, occurs about the anal region much more frequently than is usually supposed. That chancre of the rectum proper, in this country, is a very rare occurrence, but where sodomy and other unnatural vices are practiced, infection may, and, possibly, does occur with greater frequency. That females are oftener affected than males, and while the occurrence of the initial lesion about the anus or within the rectum of men is almost positive evidence of the practice of sodomy; in women, the possibility should be remembered of the infection of these parts arising through contact with the male organ or from the vaginal discharges. That the diagnosis of all doubtful cases of syphilis can now be definitely determined when the patient's blood shows a positive Wassermann reaction and by finding the presence of *sphirocheta pallida*.

Attention is called to the fact that cases of anorectal syphilis develop the usual symptoms of the disease as when it affects other parts of the body, and, next to the mouth and throat, the anus is the most frequent site for mucous patches.

Attention is called to the hereditary or congenital form of the disease; and, among the tertiary lesions, the following principal varieties are enumerated: Gummata; destructive ulceration; stricture; anorectal syphiloma, and, proliferating proctitis.

I will conclude with a brief consideration of the treatment of the disease in which attention is directed to the necessity of care being exercised in looking after the hygiene in all its phases; that the constitutional treatment of the disease should not be commenced until a positive diagnosis is established; that as no one form of mercury, or any one of the various methods of its administrations may be employed successfully in all cases, the individual requirements of each person should be the guide.

Ehrlich's remedy—salvarsan—had in several instances been employed with excellent results, but would not depend upon its employment alone, believing that mercury should supplement its use.

In the use of salvarsan, would advise that no one treat patients with it except those specially trained in its preparation and administration.

FOREIGN BODIES IN THE RECTUM.

THOMAS L. HAZZARD, M. D., *Pittsburgh, Pennsylvania.*

I wish to report four recent cases of foreign bodies in the rectum. Two were in children, in which the substances were accidentally swallowed, and the others were adults who introduced the bodies directly into the rectum through some perversity:

Case I.—A baby girl, two years old. Referred for dysentery of three months' duration. The chief symptoms were bloody stools, mucus and tenesmus. No digital or other local examination had previously been made. Examination with the little finger showed the presence of something lying across the bowel, low down. A guarded pair of scissors was introduced and this body was easily cut in half and removed. It proved to be a match, or at least, nearly two-thirds of one. Although the ends of this match were firmly fixed in the sides of the intestine, no abscesses

followed. Recovery was rapid and uneventful.

Case II.—A boy, a little older than the first case. The symptoms, conditions and procedure were the same as the preceding case but the foreign body was a bone from a frog's leg.

These cases show the necessity for rectal examinations. In one case a bacterial microscopic test had been made but was rather misleading than otherwise.

Case III.—Self-introduction into the rectum of a prescription bottle, a "Baltimore oval," three ounces. The mouth was upward. After considerable trouble it was removed by means of a blunt hook. It had been in the bowel for three days. No anesthetic necessary. The patient progressed without any untoward incident. He gave no reason for his action, and no questions were asked, as he would not have told the truth.

Case IV.—An adult, aged forty-five. He had been a cow-puncher, but at present has no occupation. He came to Alleghany General Hospital. Examination showed the presence of a very thin beer glass, two inches wide, at the top, and three and one-half inches tall. Sphincters contracted. No bleeding and but little discomfort. In attempting to remove it, it was broken. After it was extracted there was considerable bleeding from the rectum. He developed pelvic peritonitis and a rather large tumor developed in the left iliac region. This passed away and he was discharged in about three weeks, not altogether well of the pelvic pains.

General treatment in all cases was rest in bed, with frequent washing of the bowel with a one per cent solution of creolin and normal salt.

**THE LIMITATIONS OF THE USE AND THE METHODS OF EMPLOYING
LOCAL ANESTHESIA IN RECTAL SURGERY.**

LEWIS H. ADLER, JR., M. D., *Philadelphia, Pennsylvania.*

I quote from a recent article of a distinguished proctologist: "Patients seriously object to a general anesthetic and because of this and the fact that most minor anorectal operations can be painlessly performed under local anesthesia induced by sterile water, or a one-eighth of one-per-cent eucain solution, I have discarded general narcosis in about eighty per cent of my rectal operations."

In taking exception to this general statement I question the wisdom of sending it broadcast and advocating a method which in the hands of one not particularly skilled in rectal work would in my opinion only lead to disaster.

Attention is called to the water-logging of the tissues, when sufficient anesthetic be used, whether cocain, eucain, sterile water, or other agents and to the subsequent retarding of the recovery of the patient and the danger of hemorrhage from allowing patients to be about on their feet.

A thorough understanding of the underlying conditions can rarely be made without the aid of general anesthesia. The latter when administered by a competent anesthetizer is not attended with any more danger or risk than the indiscriminate employment of local anesthesia. It is essential to remove the anesthetic when the sphincter is divulsed, as deep inspiration thus induced would cause too much of the drug to be inhaled suddenly, and might cause alarming or fatal results.

Rectal diseases, which may be treated under local anesthesia, may be mentioned under two divisions: (1) Those admitting of office treatment; (2) those requiring treatment at home or in a hospital. External piles or other excrescences around the anal region, some fissures-in-ano, and abscesses (of not too large an extent), are the only affections coming within the range of operations which can with propriety be performed in the office under local anesthesia. He warns the operator that trivial fistula, often have diverticulæ and are not readily discoverable except under general anesthesia.

Internal colostomy and internal hemorrhoids receive consideration and the operator is warned that the temperament of the patient must always be taken into account. Highly nervous patients will not stand manipulation of the intestines and the abdominal muscles are apt to be rigid.

The trend of this article is not to throw cold water on the valuable procedure of local anesthesia, but to insist that the cases must be suitable and in the hands of men of experience.

[CONCLUDED.]

EDITORIAL COMMENT.

APPOINTMENT OF A DEMONSTRATOR OF ANESTHESIA AT THE UNIVERSITY OF MICHIGAN.

IN the recent appointment of a demonstrator of anesthesia in the Department of Medicine and Surgery of the University of Michigan, the Board of Regents has furnished another example of its wisdom and determination to meet present-day requirements. The demonstrator of anesthesia will be under the supervision of the instructor of practical therapeutics who, in turn will give a course upon the theory of anesthesia. The demonstrator will have immediate charge of all anesthetics at the University Hospital and will be responsible for their proper administration. His principal function, however, will be to thoroughly teach the members of the senior class the proper method of giving an anesthetic. This subject has been, as a rule, sadly neglected even by our best medical schools. Instruction in the administration of anesthetics has usually been haphazard, opportunities being given to only a small portion of the graduating class to perfect themselves in the giving of anesthetics. At best, undergraduate instruction in this important subject has been very poor. Usually it fell to the lot of a good natured interne to give a few points on how to administer an anesthetic to the ambitious undergraduate. The interne-instructor had picked up his knowledge from someone ahead of him and oftentimes his knowledge was very superficial and inadequate.

Many a man has been graduated from a medical school without ever having given an anesthetic. Yet the young graduate is almost always called upon to administer anesthetics in private practice partly because he has more time and because the older practitioner is more interested

in the surgical end of the work. A man starting in his anesthetic work without previous instruction may after a time become a good anesthetist. The chances are, however, that beginning wrong he will always be wrong and never give a creditable anesthetic.

A demonstrator of anesthesia cannot be expected to make expert anesthetists of the members of the senior class. Expertness will come only after much experience and study. But he can start each member of the class on the right road to becoming an expert if he so wishes. He can make a fair anesthetist of every member of the class, so that every graduate can administer an anesthetic with perfect confidence that the patient's life will not be unnecessarily endangered.

CONTEMPORARY.

THE INCREASED COST OF LIVING AND THE DOCTORS.

[MEDICAL RECORD.]

IN a personal way, the present increased cost of living, of course, results to the material disadvantage of physicians. As part of the great unorganized majority upon which the economic burden chiefly falls, they must stand helpless as individuals and see conditions created under which the purchasing power of their incomes steadily diminishes. Lacking the solidarity of the plasterers' or hod-carriers' guilds, they have no union to scale up their incomes commensurate with the rise in beefsteak and eggs—unlike the tradesman who meets the rise in wheat and potatoes by adding a fourth to the selling price of his wares, they cannot regard their professional services in the light of a commodity, the cost of which is to vary with fluctuation on the produce exchange. Few if any are there who would attempt to readjust their incomes to an increasing outgo by adding an extra half dollar to the charge for a visit to the ailing storekeeper or groceryman. And beside depreciation in purchasing power, the income itself tends to shrink—persons who find the struggle for mere existence steadily more bitter hesitate to deplete an already insufficient wage by calling in a doctor in the early, more amenable stages of disease, and many honest, grateful folk there are who find the new order of things an absolute bar to paying the doctor's modest honorarium. Clearly the situation is one which is of vital personal importance to the medical profession, even though its members remain capable of securing the actual necessities of existence.

But there is a large class of the public which is even less fortunate, not only those to whom the maintenance of a hand-to-mouth existence has always been a struggle, but those whose incomes, formerly sufficient for comfort, are now inadequate to provide the ordinary decencies of life. Women, whose labors should have remained domestic for the sake of the unborn future, have become conscripts in the army of industrial toilers;

tender children are snatched from school and play to be stunted in body and mind by the exigencies of too early labor. Even if the medical profession is too unselfish to fight for its own advantage like the artisan guilds, yet it is its duty to champion the cause of the suffering and helpless. While others may bow to the sordid god of Business, the high calling of the physician lifts him superior to all interests save that of humanity, and this duty is even more urgent since, bad as conditions are, there is every reason to believe that they will become worse. Entrenched monopoly is loth to give over its fattening; and the rapid aggregation of wealth into steadily vaster masses means economic conditions, outside of competition, under which, without repressive measures, not only individuals but communities will become powerless. A thoughtful, dispassionate profession will, therefore, in union with all good citizens, consider the vital question of corporations, with the view of identifying and opposing such as seem to be inimical to the best interests of the community and the race.

If, as has been said, the tariff is the mother of trusts and bestows its benefits and imposes its burdens unequally and unjustly or if it is necessary to the prosperity of the country, in either case it is a subject which, from its profound influence upon the individual, society, and humanity, the doctor would do well to consider and study. When it is next subject to legislation, he should insist that its provisions be bared to the white light of publicity, and that the welfare of human beings be given as much consideration as the rights of property. The doctor should vote as he practises—for the benefit of humanity. Himself well satisfied with a modest competence as return for the exercise of his humanitarian functions, it should be difficult for mere sophistry to betray the physician into supporting any principles, groups, or individuals whose success may mean the acquisition of excessive wealth by the few at the expense of want, suffering and physical deterioration by the many.

Industrial competition is, of course, a most necessary and excellent thing in its way, for the material progress of mankind undoubtedly depends upon the fitting reward of special ability and zeal and the due penalizing of inefficiency and sloth. But these rewards and punishments must not be allowed to become excessive if the welfare of the race is to be considered. There is no harm done either to the present generation or to posterity when relative inefficiency punishes itself through inability to provide luxuries; but it becomes quite another matter to the State if rewards for success are allowed to become so excessive that punishment for failure carries with it deprivation of the actual fundamental necessities of existence and the perpetuation of a robust healthful race. It is therefore a question, which carries its own answer, whether any economic system which permits the generations yet unborn to come into the world degenerate in body and mind as a result of the deprivations of their parents, can be approved by the physician. Aside from any menace to our national institutions, the piling up of the tremendous modern private fortune, the very vastness of which absolutely precludes the use of even a fair fraction of its income by its possessor, seriously threatens the public health and the physical efficiency

and standards of the body politic. Originally, there is a fair living with reasonable comforts available to us all in this country, and it is a matter of simple mathematics to show that the aggregation of an undue proportion of the available wealth in the hands of the few means a subtraction all along the line from the resources of the many and corresponding reduction in standards of living.

And in respect to the sociological and health problems created by such excessive fortunes the physician, in an individual way, has opportunity to work for society through his intimate professional relations with the very rich. He can honestly assert that the creation of unduly great fortunes is a benefit neither to their possessors nor to the race. Ability habitually to overindulge in costly indigestible food and drink and to avoid physical labor, combined with the excessive nervous strain of business competition and the complexities of social life, have their results in the steadily rising rates for disability and death from neurasthenia, gout, rheumatism, and the diseases of the kidneys, heart, and circulatory apparatus. The poor man, with all his ills dependent on malnutrition, fortunately escapes that of corpulency, a condition which was recently shown had never, in the experience of the two largest life insurance companies, existed in risks who survived to a good old age. Both extreme in the social scale have their special perils.

As doctors we appreciate that beyond the ability to provide for all one's physical and mental needs, the acquisition of wealth serves no useful purpose; while the corresponding deprivation under which the general public is thus made to labor has too profound an influence on the race to permit us to countenance wealth-getting as a pastime or an obsession. The collection of dollars has quite a different effect upon the community than that of the collection of postage stamps for example. And when the man with superabundance apparently regards money-getting as a sport, like hunting or fishing, it is well to recall that particularly all our States now have laws fixing a legal limit to the bag of quail or trout; when the desire reaches the intensity of an obsession, suggestive treatment like that required for the victim of any other unhealthy idea is desirable.

Nor does the ultimate good disposition of great wealth repair the damage wrought by its accumulation. With all appreciation toward those who build hospitals, endow institutions, and donate libraries, nothing they thus do can compensate the race as a whole for the results of the less wholesome conditions and environment which continued denial of their adequate share in the rewards of industry have brought about. It would be now both impossible and unwise to give this share back—but it was an injury to the nation and race to take it away in the first place.

Finally, while standing always for material progress, the physician ought to preach the doctrine of the simple life as opposed to the useless artificialities which constantly and unnecessarily tend to render existence more complex. He can consistently set his face against the follies and extravagances which weaken the race as a whole and create conditions which favor the elimination of the social extremes. Of far clearer vision than the self-centered money-grabber, he must interpose to stop the scramble to discount, for present advantage, the future health and happiness of the nation.



Frank R. Croster,

[SEE PAGE 151]

Courtesy of New York Medical Journal.

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VOLUME XXXIII.

66

ORIGINAL A

MEMORANDUM

A CASE OF CHRONIC ALCOHOLISM WITH PSYCHOTIC SYMPTOMS AND EPILEPTIC SEIZURES

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This subject has been chosen because of its modern interest and importance of contemporary literature. It states names and the

X. Y., the character of a man of American parentage, Z. Y. was a business man, having begun to trade before he had even started in his studies. A few years before the outbreak of the revolution, when the prices of various commodities were rising, he had made a fortune. He was, in the next century,

X-Y's maternal grandmother, a religious convert, converted. In her old age, she was for a time again so far recovered as to be able to pray. Her daughter, X, was, perhaps, a fool, but when X-Y was the thing that attracted proper ladies,

*Read before the Directors



Frank R. Foster,

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ORIGINAL ARTICLES.

MEMOIRS.

A CASE OF CHRONIC ALCOHOLISM RESULTING IN PSYCHOLOGIC SYMPTOMS PROBABLY EPILEPTOID IN CHARACTER.*

JUSTIN E. EMERSON, M. D.
DETROIT, MICHIGAN.

THIS subject has been chosen for discussion this evening not merely because of its academic interest but rather on account of the practical importance of certain questions that are suggested by its consideration. Exact dates, names and localities have been avoided for obvious reasons.

X. Y., the character who figures in the following clinical history, is a man of American parentage about forty-five years of age. His father, Z. Y., was a business man, a member of a protestant church, of good habits, using neither tobacco nor alcoholic drinks, provident and reasonably successful in business and until late in life enjoying good health. A few years before his death, however, he suffered from a severe attack of paralysis agitans which for a time incapacitated him from all business, but from which he unexpectedly recovered. He died at about the age of seventy.

X. Y.'s maternal grandmother was a woman of strong character, of decided religious convictions, one of the pioneer settlers of the western country. In her advanced years she became erratic to such a degree that she was for a time a patient in an asylum for the insane. However, she so far recovered as to return to her home where she died at a very advanced age. Her daughter, X. Y.'s mother, was a most excellent and lovely woman, perhaps a too affectionate mother, who had five children, of whom X. Y. was the third. At the birth of her first child she had an attack of puerperal insanity and was treated for a time in an asylum for

*Read before the Detroit Society of Neurology and Psychiatry, December 1, 1910.

the insane, and so far recovered that she returned to her home and its duties, after which her other four children were born. Some years after the birth of her youngest child she again suffered from a renewed attack of mental depression, at the time of the climacteric, and took her own life.

X. Y., as a boy, although bright, was obstinate and wilful and not easy to manage and these traits were perhaps intensified by the fact that he was an only son in a family with four sisters. His school education was received in the public schools of a middle western city and terminated by his own choice soon after he entered the high school. He then obtained employment in a retail hardware store, and after a few months in a wholesale hardware store where he continued for several years. During these years his chosen associates were young men of a fast type with whom he developed a fondness for alcoholic drinks and habits of intimacy with women of loose morals. Finally at about the age of twenty or twenty-one he married a young woman whom he had met in surroundings at least dubious. This marriage was terminated by divorce after about a year.

After this experience he left his home and obtained a position in another city in a firm conducting a hardware business with whom he remained for ten years, winning the confidence of his employers and gaining a steadily increasing income up to five thousand a year, as well as greater responsibility in the business. During this period he was married to a lady of most excellent character by whom he had a son, now about sixteen years of age. There is reason to believe, however, that he did not give up the habitual use of alcoholic drink, and that during the latter part of this period his sexual habits were inconsistent with his marital vows.

About this time the head of the firm died, and some changes of the organization were impending, and he conceived the idea that other members of the firm were inimical to him and were conspiring against him; under this idea he gave up his position, drank to excess, abandoned his loyal and devoted wife and lived with a dissolute woman who was mistress of a house of ill repute. Indeed he seemed to abandon himself wholly to his vicious impulses and not long after, under the idea that this woman intended to throw him out, and while under the influence of alcohol, he "shot up the house" and was so violently disorderly that he was placed under arrest and but for the strenuous exertions of his friends would have been sent to prison. He was, however, seriously ill as a result of his excesses, and during his illness was nursed back to life by his faithful wife, only, on his recovery, to forsake her and again seek out his paramour. Yet, most inexplicably, when an agreement to separate was negotiated, he turned over to his wife all the property that he had accumulated, about ten thousand dollars.

Since that time his life has been an ever changing series of brief engagements in various positions in different cities of the west, none of which he has held for any length of time, usually giving up a position from mere restlessness or some imaginary ground of dissatisfaction, such as that some person or combination of persons was inimical to him.

About six years ago he consented to go to a hospital for treatment for

the liquor habit promising to remain there at least two months, yet he left in two weeks. Shortly afterward he entered into a liason with another woman and lived with her until his wife in despair obtained a divorce from him after which he married for the third time. After that, as before, he continued his unsettled life, moving from one city to another.

At one time he decided to become a fruit grower on a farm on the Pacific coast and persuaded his friends to assist him in the hope that separation from his old associates might accomplish his reform, but though he had his passage given to him, he could find nothing to satisfy him, and induced a friend to give him the means to return to the east.

On his return he obtained a position in a factory to fit himself for a position as salesman. During the period of about two years he worked in the main fairly steadily, though he continued the use of alcoholics, drinking at night but abstaining from their use during the daytime. At times he would remain out to a late hour and return home much under their influence. Of his sexual habits we have no positive information.

At one time during this period he became restless, talked of the hostile combination against him and gave up work for several days. However, he resumed work in a few days and continued until sometime in August last when he again became restless, talked of accepting a position with a firm for which he had once worked and was much disturbed over the old delusion that there was a conspiracy against him among his fellow employes. He gave up his position, yet did not decide to accept the position offered him, and seemed without any definite plan as to what he wished to do. He startled a young lady, a daughter of the family with whom he lived, by saying to her, "Go down on your knees K—— and make your peace with Almighty God. God has told me to give you this message." He also visited the manager of the factory where he had worked with a proposition that the conspirators should be rounded up before the manager and that he should be called in, and that he would crush them. He then visited a relative residing in the country not far away, in a very nervous condition, telephoned to the young lady to whom he had given the message from God, and repeated his message, talked excitedly about his enemies and on several occasions became suddenly pale, and with an expression of terror on his face exclaimed: "There they are."

After dinner, of which he ate very little, he decided to return to the city on the electric car, but he would not ride to the station, half a mile away, in the automobile, because, as he said, he "did not like the looks of the chauffeur" whom he said he could "see through" and distrusted. The chauffeur was a perfect stranger to him.

He then walked to the station with his relative and her husband and boarded a car that was about to start for the city but got off saying that it was too crowded, then entered a second car, looked around and left it saying that it was not light enough.

His friends then invited him to spend the night at their home and to return to the city in the morning. To this he acceded and they started to walk home. While walking in the road an automobile approached from

the rear. Noticing it, he became very pale, agitated and apprehensive, exclaiming, "There they come, we must meet them face to face." He seized his relative and tried to drag her in front of the automobile which he would have done but for the interference of her husband who pulled them out of the road and threw him on the ground.

When the automobile had passed, they went on to the house and he soon retired, but in a very nervous and apprehensive state of mind. Not very long after retiring he called to his hostess saying that some one was trying to get into his window (his room was on the second floor). She went to him and tried to reassure and soothe him but without success, and as he wished to have a light burning through the night in his room, she went down stairs to get a candle, and had ascended the stairs a few steps when, standing at the head of the stairs he suddenly gave a yell and plunged headlong down the stairs, knocking her senseless to the floor where he also lay unconscious and bleeding profusely from a wound on the head.

A physician was called and his wound dressed and he was taken to a general hospital where he remained quietly for several days after which he was taken to a psychiatric hospital, not with his approval, but with his acquiescence, when the nearly fatal results of his conduct had been pointed out to him and the futility of resistance indicated. He insisted that he had abundant reasons for all that he had done, reasons that he could give if he thought best and that the situation was perfectly clear to him. He also affirmed the truth of his statement to the young lady that God had told him to give her the message, showing clearly that he was suffering from definite and well marked delusions which he would not state in full. At no time had he shown any keen sense of remorse for the distress that he had caused his friends, though when the subject was pressed upon him he said with an air of indifference that he "was sorry."

When the court order committing him to the hospital was obtained he expressed no little indignation that such a step should be taken, as it involved publicity and would ruin his prospects for life. When reminded that his habits of drinking were the cause of all his troubles he cheerfully replied that he had fully determined not to drink any more.

During his stay of two months in the hospital he was quiet and courteous and did not exhibit to the doctor in charge any evidence of his delusional state, which no doubt still persisted, but in letters to a relative he expressed resentment at the way in which he had been treated and a fixed determination to escape unless removed at an early date.

When an order of the court was obtained transferring his commitment to another hospital conducted by Sisters of Charity, he again expressed bitter resentment that an order of the court should have been considered necessary, declaring that it ruined his reputation and prevented any success in the future. At this time he denied any memory of certain events of which he had previously said that he had a perfect knowledge, and for which he had said he had good reasons. It was very clear to me that this denial was for ulterior purposes and was wholly untrue.

At the hospital conducted by the Sisters he controlled himself so well that they could not believe that he was insane. Yet it was evident that he was utterly egotistic and selfish, caring not at all for the anxiety, distress and apprehension which he caused his friends, that his disregard of truth was so complete that no reliance could be placed on what he said or in any promise he made. His lack of judgment was shown by wholly unpracticable schemes he proposed for his future after he should be released from the hospital. Yet he was so plausible that he could always influence his friends to believe that he was sincere in his plans and promises.

After about three weeks' stay in the hospital he induced his friends to ask that he might be allowed to visit his former home to provide clothing for cold weather, but when it was arranged that some one should accompany him, he managed to escape and went to the city alone. He then communicated with his friends by phone and arranged for an interview with a promise that no advantage should be taken to return him to the hospital.

At the time of the interview he agreed to go to a western state and remain there if his fare for transportation were furnished and his board in any town in that state that he might choose were assured; the time was fixed when he was to meet a man who would accompany him, but when the hour came he was not there.

It was learned that he had communicated by telegraph with his wife in a western city and had received money to enable him to join her there. It was also learned that after escaping from the hospital, he drank almost incessantly. Nothing more has been heard from him.

We should state here that there is no evidence that X. Y. ever suffered from luetic infection, and there is no history of convulsive seizures at any time in his life. He used chewing tobacco only moderately.

We have given merely a history of the life of X. Y. so far as we could obtain it. Doubtless there may be omissions in the narrative, and the chronologic sequence of events may not in all cases be correct, but if so, such errors were unavoidable and in all probability would not modify the conclusions which we shall reach in the consideration of his disorder.

From the maternal history, we shall doubtless agree that he undoubtedly inherited an impaired and unstable nervous organization that would predispose him to some neurosis or psychosis sooner or later in his life; also that his precocious initiation into the uses of alcoholic liquor would intensify the tendency of such an inheritance, while his precocious sexual irregularities would still further intensify his pathologic tendencies. Yet, beyond the evidence of low moral tone, and facility in yielding to the vicious influences of his associates, we do not find in the history of his early years after leaving school any evidence of an active psychosis and it is surprising that he succeeded so well in business and that he won the affections of so estimable a lady as his second wife is represented to be.

However, after some years of married life and the probable use of alcoholics, there is evidence of mental deterioration as shown by his infidelity to his marriage vows; and a little later paranoid delusions of con-

spiracy and persecution, his desertion of his wife, his complete surrender to the liquor habit, and his giving up his business position and a good income, point to the conclusion that he was then suffering from an active psychosis. Yet up to this point I see no evidence of anything epileptoid in his condition but rather the natural result of alcohol and venereal excesses. I cannot read in the narrative a history of *periodic dipsomania*. Why not? Because his dipsomania was habitual and not periodic.

During the succeeding years until he entered the factory where he last worked, he manifested an instability of purpose and an inability to hold a business position permanently, that certainly point to mental deterioration; but without further evidence I see no reason to suspect the existence of an epileptic state as a cause of his drinking habits. It is unfortunate that we have not a more complete history of his life during these years when he was so often changing from one place to another. With the termination of his connection with the factory, however, a new and striking phase in his mental condition is presented. The delusions of conspiracy and persecution which had sometimes appeared on previous occasions in his later history, now assume a more intense form and accompanying them there are delusions of inspirations and communications from God, while at the same time there is developed an intense egotism, a belief that he had not only a special illumination, but also special power to crush his enemies, conditions that are certainly suggestive of a paranoid state. But later appear the attacks of sudden, brief pallor of countenance, a sense of apprehension and terror with possibly hallucinations of sight or hearing, lasting for only a few moments or seconds and passing away. And finally the sudden attack when in an apparent paroxysm of terror, he precipitated himself down the stairs with a yell, so injuring himself that he was picked up unconscious.

The question arises, was his unconsciousness the result of an epileptiform seizure, or was it due to the blow on the head which must have caused a severe shock. Fortunately, there were eye witnesses of these attacks all testifying independently to the same conditions. The patient said that he remembered standing at the head of the stairs and that he became dizzy and remembered nothing more. Of the minor seizures he at first seemed to have some remembrances, yet from the statements of those who observed him, it seems to me probable that there was clouding of consciousness and really only a hazy remembrance of what occurred.

These attacks probably indicate an epileptoid condition. Yet it is possible that he really did remember the occurrences, as he said. If so, it very much weakens the evidence of epilepsy, and some other explanation of the symptoms must be sought. But what other explanation adequately interprets the symptoms?

I must confess that I am not altogether in sympathy with the efforts of some writers to so extend the meaning of the term epilepsy as to include large numbers of phenomena that have at best only a phantom resemblance to the symptom-complex that we all understand as epilepsy.

I do not believe that dipsomania is always, *per se*, one of the forms of

epilepsy, yet we often observe classical epilepsy as a result of ordinary chronic alcoholism as well as of periodic dipsomania. There are those who consider migraine as one of the manifestations of epilepsy, because it is periodic. One point of resemblance is not enough to justify such a classification; or if we think it is, I ask, are not the totality of the symptoms observed in hysteria often much more nearly similar to those of epilepsy, than those of either dipsomania or migraine?

If again we include in the domain of epilepsy all those neuroses which have a certain resemblance in some of their characteristics, shall we at the same time spread over all of them the mantle of irresponsibility which is so often used to cover the actions of those who have undoubtedly suffered from classic epilepsy?

Is it not a gross and dangerous mistake to assume that epileptics should be considered irresponsible for all acts of a criminal nature, such as assault, homicide, arson, or robbery? May not an epileptic be guilty of criminal acts, committed while not under the influence of an epileptic seizure?

In the particular case under consideration, what should be done with him? If committed to an asylum and detained there with no chance to obtain liquor of any kind, he would cease to exhibit the symptoms that characterize a psychosis and an appeal to a trial by jury would surely set him free. What then?

Is it not well to ponder upon these questions while free from the interested influence of criminal lawyers whose sole effort often is to acquit their clients?

If, again, an epileptic or other insane person is acquitted of crime, say criminal assault, murder or arson, on the ground of insanity, should not he, in the interests of society, be segregated from the public as a necessary safeguard?

Should we attach much if any weight to the statements of an epileptic (especially if accused of crime) as regards his memory of the acts for which he is under interrogation? Is there not the greatest possible temptation to falsify? It seems to me that his testimony under such conditions is in fact wholly unreliable unless established by undoubted evidence that may corroborate it beyond the possibility of doubt, and the judge should so charge the jury.

A CLINICAL DEMONSTRATION OF THREE CASES OF MENTAL DISTURBANCE.*

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CASE I—CEREBRAL SYPHILIS.

THE patient is a man thirty-two years of age, who has been in the Psychopathic Hospital since January. The family history showed no nervous or mental disturbances in the ancestors. His child life and early adult experiences seem to have been uneventful. He was a student

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until he was twenty, and since then has been employed as a teacher. He has never married. He was moderate in his alcoholic habits. At the age of twenty-seven, a few years ago, he contracted syphilis. He worried much over this, undertook a thorough treatment, but could not be easy in his mind. He became neurasthenic, and read much literature on the effects and treatment of syphilis. Ten months ago he had become so nervous that he gave up his school work. This nervousness seemed to be of the nature of an apprehensiveness, with marked fears for the effects of the syphilis. About three months ago he had an attack of unconsciousness, which continued for three weeks. Following this there persisted a partial inability to use the left leg. There was also a marked change in his mental condition. He showed a good deal of agitation. He talked much and had a peculiar singing method of intonation. He repeated over and over such phrases as, "Ain't I hard up? I'm in an awful condition. I'll never get any better." In this condition he was admitted to the hospital.

Physically, at that time he appeared in poor nutrition. His skin was dry and rough. On each thigh, just above the knee, was a small superficial ulcer. Over the sacrum and the right trochanter were several reddish-brown areas of discoloration and slight induration. He showed an interesting congenital defect in the fingers of the left hand, there being an absence of the third phalanx of the third finger and the second and third phalanges of the little finger. There was a small scar on the glans penis and several small scars on the anterior surface of the scrotum.

He showed then and now few positive neurologic disturbances. He complained much of aches in various parts of his body, and said he had at times had attacks of dizziness. There is no abnormality in his station. His gait shows a slight limping and impaired use of the left leg. The facial movements show nothing peculiar. The tongue is protruded straight but is a little tremulous. The pupils are of medium width and react within normal limits. All tendon reflexes are a little increased, and there is a slight ankle clonus. There is no Babinski sign. There are no disturbances of sensibility. There is no speech defect with test phrases. The fundus examination showed slight congestion of the nerve heads and slight retinal edema. The examination of the cerebrospinal fluid showed a slightly increased pressure. There was an increase of cells, about forty per cubic millimeter. The total amount of albumin was not increased beyond normal limits, being about seventeen-hundredths per cent. The Noguchi butyric acid test for globulins was positive. A positive Wassermann reaction was obtained in the spinal fluid but was negative in the blood. A differential count of the cells present showed polynuclear cells, twenty-seven per cent; mononuclear cells, sixty-six per cent; plasma cells, four per cent; endothelial cells, three per cent. A few of the endothelial cells contained old blood pigments. He has at times been clear in his comprehension and orientation. He is restless, usually walking up and down the wards talking incessantly, repeating over and over again the same monotonous phrases. His thoughts are centered on his

health, which he thinks is hopelessly ruined by his syphilis. All day long he moans and utters such phrases as, "O, ain't I laid up now; ain't I in a terrible way?" Often he sings these in a peculiar intonation. His mood is at all times depressed, and not for more than a few minutes is it possible to turn his thoughts from himself. His memory is good for recent and past events, except the period of his attack three months ago. This condition has continued with no change until now.

The condition which we have just reviewed is of considerable interest from the standpoint of differential diagnosis. There can be no doubt but that we are concerned with a mental disturbance dependent upon an infection with syphilis. The question is whether the condition is one of general paralysis or is an organic mental disturbance due to the presence of such syphilitic processes as gumma, endarteritis, or meningitis.

As regards general paralysis, there seem to be a number of points in this case which distinguish it from this disease. One of these is the short interval in time between the infection and the occurrence of the mental disturbance—in this case only five years, while cases of general paralysis developing so soon as this interval are rare, the majority of the cases coming on ten years or more after the infection.

There are lacking in this case the disturbances of the pupils, the tendon reflexes, and the speech, which are so consistently found in general paralysis. The character of the mental symptoms is unusual for general paralysis. There are depressive forms of general paralysis, but in such cases the ideas would have become more absurd and shown a senselessness which comes with the deterioration of this disease. Furthermore, the clinical course of the depressed form of general paralysis runs a far more sure and rapid course than has been the case here.

The examination of the cerebrospinal fluid shows a lower amount of albumin than usual for general paralysis. The cell count and the globulin test and the Wassermann reaction are indicative of syphilitic involvement of the central nervous system, but does not necessarily mean general paralysis. As a rule, a low albumin percentage with an increase of cells indicates cellular syphilis rather than general paralysis.

Finally, it is unusual to find the evidence of tertiary syphilis, such as the skin lesions which are present here, in general paralysis.

If one excludes general paralysis, the diagnosis rests between gumma and endarteritis and meningitis. For endarteritis there is nothing that is positive. The absence of any severe focal disturbances, which are so commonly present in the vascular lesions of syphilis would make this unlikely.

Against meningitis there is the lack of pupillary involvement, the lack of irritation symptoms and a lower cell count of the spinal fluid than is usually found in meningitis.

One arrives at the diagnosis of a gummatous condition of the brain largely by exclusion. The congestion of the nerve heads in the fundus of both eyes may be in support of an increased intracranial pressure which is common as a general symptom of tumor. But there is such

an absence of focal symptoms that a nearer diagnosis seems hardly possible.

We feel, therefore, forced to the conclusion that we are here concerned with a case of cerebral syphilis rather than general paralysis, and that this condition is a gummatous tumor infiltration in some region giving no localizing symptoms.

The case seems to offer possibilities of improvement under salvarsan and it is our intention to give this at an early date.

CASE II.—MENTAL DISTURBANCE ASSOCIATED WITH DISEASE OF THE THYROID GLAND.

This young girl came into the hospital a few days ago because of certain peculiarities which had recently developed in her conduct. Her family had noticed that during the past year there had been an increasing change in her disposition. She became less interested in her work, was irritable, and objected to home restraint. Often she would have periods of crying without any reason. These matters increased and four months ago developed into what may be considered a condition of moderate excitement. She refused to obey her mother. Instead of remaining obediently at home, she went out on the street, was forward in her manner, talked and sang a good deal. Her conduct became such as to be brought to the attention of the Juvenile Court, and it was decided to send her to the industrial school. There had been from the first certain physical conditions which suggested that these might be responsible for her condition, and for that reason she was sent to the hospital. Her conduct then became such that she was kept in the jail for a few days preceding her admission here. Then she would sing and talk incessantly and seemed unable to carry on any continued line of thought.

The physical examination made at her admission showed nothing of importance except an enlarged thyroid gland, due apparently to a cystic condition of the right lobe. Inquiry shows that this had been gradually developed during the past six years, and recently it had been causing her considerable discomfort. She complains of a choking, pulling sensation in the throat which makes her cough considerably. She says that she easily becomes excited and then can feel the throbbing of her pulse in every part of her body but particularly in the head and ears. Her voice is noticeably hoarse and an examination in the Otolaryngologic clinic showed that she had a right-sided abductor paralysis of the larynx. Apart from this there are no neurologic disturbances. The eyes show no pathologic conditions, and the pulse is about 88, regular and of good tension. Her mental condition at admission was quite as it is now. She has generally been wildly elated with episodes of irritability and anger if her requests are not complied with. She talks much, her thoughts coming rapidly, but without marked distractibility. There are no delusions nor hallucinations and on the whole her condition might be regarded as a mild hypomania.

The circumstance that the mental condition has developed in asso-

ciation with changes in the thyroid gland suggests that perhaps the condition may be dependent upon these changes. The thyroid gland occupies an important relation to nervous and mental functional disturbances as well as to physical conditions.

We are familiar with the peculiar mental disturbances associated with myxedema and cretinism, and of the marked improvement which results after treatment with thyroid preparations. These conditions are specially characterized by mental dullness and arrested development in addition to the physical disturbances of these diseases.

It is also a common observation that in Basedow's disease with its enlarged thyroid gland we frequently have peculiar mental and nervous disturbances. In fact the mental state of Basedow's disease closely resembles that of our patient. Only recently we have had in our clinic two patients, typical cases of Basedow's disease with these mental symptoms of exhilaration, overactivity, and disturbances of thinking. In our patient, however, there is much that is lacking to make a diagnosis of Basedow's disease. There are no eye symptoms, no tachycardia, nor vasomotor disturbances. The points in common that they have are the mental state and the enlarged thyroid. This increase in the size of the gland has suggested that we are concerned with an increase in functional activity of the gland, and that the mental condition is one which has sometimes been described under the heading of hyperthyroidism. It seems to us that one is not quite able to certainly exclude the possibility of this condition being the hypomanic phase of manic depressive insanity. The two conditions have much in common. However, we cannot help but feel in this case that the condition may be benefited by surgical treatment, especially since the symptoms from pressure have developed. It is our intention to refer her to the Surgical clinic for operation for partial removal of the thyroid gland, in the hope that after a period of rest following the operation she may be restored to her normal mental condition.

CASE III.—HYSTERIC APHONIA IN EPILEPSY.

This woman who recently was brought to the hospital shows us the interesting condition of being unable to speak aloud. As we attempt to converse with her the only responses we can obtain are barely audible whispers. This disturbance of speech has been present only a few days, and at the time she was admitted she was screaming and shouting in a state of intense excitement. This was the immediate reason for bringing her to the hospital.

The information we have been able to obtain shows that she came of a badly tainted family. Her father had been a chronic alcoholic and a sister has had epileptic attacks. She herself has suffered from convulsions since she was nine years old. At first the attacks were of a light petit mal type and occurred several times daily. About twelve years ago the attacks became more severe. In these she would fall to the floor, become rigid and then have the clonic movements of the epileptic attack. These attacks were less frequent, occurring about once each

month. Apart from the convulsions she has had several episodes of unconsciousness lasting several days. In some of these periods she would go about the house in a peculiar dazed condition, attempting to work, yet unable to do anything properly. After the attack passed away she would have no memory for what had transpired. Shortly before her admission here she was found in a bewildered state. In this she acted as if in a dream. This continued for two days when she became greatly excited, and was then brought to the hospital.

The examination there showed no important neurologic or physical abnormalities, except that her tongue and cheek were scarred, caused, as the patient tells us, from biting herself during a convulsion. After a few days in the hospital she became clear. She gave an account of her previous experiences, but showed an impaired memory and a considerable degree of intellectual deterioration.

Such a history as this is not an unusual one and leaves no doubt but that we are concerned with the deterioration of a chronic epileptic condition.

On February 1 she suddenly became unable to speak aloud, and passed into the condition you see here today. She tells us that she has had attacks similar to this before and that they usually come on a few days before a convulsion.

A laryngeal examination shows a paralysis of the transversus muscle of the larynx and the opinion of the Otolaryngologic clinic is that it is an aphonia of hysteric nature. That this is the correct diagnosis is seen by the presence of other disturbances which are characteristically hysterical. We find that while she has tactile appreciation, she is totally unable to feel pain from severe pinpricks in any part of the body. The conjunctivæ are anesthetic and the corneal reflexes are absent.

Hysteric conditions such as are present here are not infrequently associated not only with epilepsy but also with other psychoses. Each year we see cases of epilepsy with various disturbances of psychogenetic origin. Often it is a difficult matter, especially where the question is as to the character of the convulsion, whether it is an epileptic or hysteric attack. In instances such as the one before us it is less difficult.

The circumstance that this woman has previously cured herself of this aphonia by drinking salt water gives us a convenient and probably certain method of cure, and we can expect that within a short time the aphonia will disappear as quickly as it came.

REPORT OF SEVEN CASES OF TABES DORSALIS WITH THE KNEE JERK RETAINED OR EXAGGERATED.*

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THE retention or exaggeration of the knee jerk in tabes dorsalis is illustrated by the following report of cases:

CASE I—Record number 71801.—Mr. P. B. P., of Mississippi. American; married; aged forty-six; merchant. Examined July 20, 1910.

*Read before the Detroit Society of Neurology and Psychiatry, December 1, 1910.

Family History.—Father died at seventy-four years of anemia. Mother died at fifty-five. Does not know the cause of mother's death. Two brothers and two sisters living and healthy. Gives no history of any psychopathic or neuropathic strain or condition in the family.

Personal History.—Patient had the milder infectious diseases of childhood and malaria at various times and made good recoveries from all of them. Has never been addicted to the use of alcohol or drugs. Smoked two or three cigars daily previous to last November. Diet has been plain. Has had no fevers during adult life. Has had no injuries of any kind and no protracted illness. When a young man he had gonorrhea. Ten years ago he had syphilis and says he has taken treatment since.

Present Illness.—His present trouble began in November, 1909, about eight months previous to the present examination. At this time he had a peculiar attack in which he says the lower jaw seemed paralyzed. He was sitting in a chair when he felt a peculiar tingling sensation in his extremities and dizziness. His mouth was wide open and he could not close it. He was unable to talk. This lasted about a minute; afterwards he felt nervous and weak. About a week later he had a similar attack and had two or three attacks afterward, the last one being the 9th of December following. His physician told him that these symptoms were due to sclerosis of the arteries of the brain. About the same time, that is about eight months previous to this examination, he began to have sharp, shooting pains in the feet and legs. These attacks of pain came at irregular intervals. He described the pain as sharp, shooting, severe in character, and located in the feet and legs. At the time of the pains he was particularly sensitive to cold and to contact with objects on the skin. These pains have been with him for the last eight months. More recently he has not felt so sure of his footing, has some difficulty in walking after dark and is obliged to be more careful. He has had in the last few months frequent attacks of vertigo. His appetite at present is good, but all his life he has had heartburn, sour stomach, eructations of gas, bloating and heaviness after eating. His bowels are constipated, and he is obliged to take laxatives. For some time past he has had difficulty in starting the flow of urine and in emptying his bladder. At other times he has difficulty in retaining the urine. He has had a dull headache nearly every day, which is worse in the afternoon.

Physical Examination.—Weight, one hundred and fifty and one-half pounds. Nutrition good. There are a few papules and pustules scattered over his chest. Muscles are of fair size; muscle tone somewhat diminished. Bones and joints are normal. Examination of the chest contents negative. He has a coated tongue, slightly swollen, showing indentations of the teeth. Lower border of stomach is two inches above the umbilicus. Temperature 98.6°; pulse 76. Systolic blood pressure 120 millimeters; diastolic, 82 millimeters. Blood count shows a slight amount of anemia and the urine a considerable amount of indican.

Examination of the Nervous System.—The patient staggers when walking in the dark and cannot walk a straight line with the eyes closed. Body

sways considerably in standing with feet together and eyes closed (Rhomberg sign). No ataxia in the arms. He is very sensitive to cold water so that when taking hydropathic treatment care needs to be exercised as the cold water proves a severe discomfort. Pain sense in the legs is somewhat diminished below the knees. There is apparently no loss of the tactile sense, and he recognizes impressions of heat and cold readily, being hypersensitive to cold, as above indicated. Knee jerk exaggerated in both legs, Babinski's sign not present. The plantar and abdominal skin reflexes are also increased. Pupils are unequal, the left being larger than the right, neither responding to light.

Diagnosis.—First stage of tabes dorsalis.

CASE II—Record number 71509.—Mr. F. W. F., of Arizona. Aged thirty-eight; tailor by occupation; married. Examined June 23, 1910.

Family History.—Father died of Bright's disease at the age of sixty-eight; mother died at fifty-five of Bright's disease. Two sisters living, one has stomach trouble and sick headaches, the other sister is healthy. Two brothers living and healthy.

Personal History.—Patient had the milder infectious diseases of childhood, but made good recoveries from all these; no other infectious diseases at any time in life. He has never used drugs nor tobacco; takes an occasional glass of beer. Diet has been simple and nonstimulating; has never had any injuries. When a young man had gonorrhea two or three times, and had a soft chancre at twenty years of age. Has never had any other severe illness of any kind.

Present Illness.—His present trouble began two years previous to this examination. At this time he began to have trouble with his stomach and got up one morning feeling nauseated and with a sensation of fulness and distress in his stomach; vomited for several hours, then this trouble passed away. About a year later he had a similar attack of nausea and vomiting which lasted for nine days, and occurred many times daily. Vomitus consisted of food, water, bile and some mucus. Has had three or four of these attacks during the last year, when he will be nauseated, vomiting frequently, the attacks lasting from a few to several days each. The last attack seemed to be worse than the others which preceded it. During these attacks of nausea and vomiting he has sharp, shooting pains in the limbs, first in one place, then in another. He has no colicky pain in the abdomen, and never was jaundiced during any of these attacks. After the latter he feels drowsy and weak for a few hours and his bowels become constipated. Then he feels fine for about a month, when another attack will appear, the attacks beginning usually with nausea in the morning on arising and also after evacuation of the bowels. These attacks of nausea and vomiting can sometimes be relieved by lavage. He has lost fifty pounds in weight since this trouble began. He suffers from poor circulation, cold extremities, and some palpitation of the heart at times. He has difficulty in starting the flow of urine. When a young man he had attacks of sick headache. These continued for seven or eight years, but he has had none of them for the last eight years. He sleeps poorly.

Physical Examination.—Weight, one hundred three pounds. Nutrition poor. Skin sallow; muscles small, muscle tone reduced. Lymphatic glands negative. Bones and joints normal. Examination of chest and thoracic organs negative except that the heart's action is rapid. Examination of abdominal organs negative. Temperature 98°; pulse varies from 96 to 108. Systolic blood pressure 122 millimeters, diastolic 97 millimeters. Blood count practically normal. Examination of urine negative except a few crystals of uric acid and some indolacetic acid.

Examination of the Nervous System.—Patient has the sharp, shooting pains in his legs as above mentioned which come on in attacks especially during the attacks of nausea and vomiting above described. He is also very sensitive to both heat and cold, particularly noticeable in attempting to give him hydropathic treatment as the application of the hot and cold water causes distress. The pain sense is very much diminished in the legs, especially below the knee. A pin can be thrust into the skin without causing any pain. There is no loss of tactile or temperature sense. He is able to recognize slight contact with cotton or a feather or a slight touch of any object; can also distinguish the temperature of the examiner's hand. He is able to walk well and no staggering gait can be observed. When his feet are placed close together and his eyes closed there is only slight swaying of the body. He walks a straight line very well with his eyes open and nearly as well as normal with the eyes closed. Pupils react to accommodation but not to light. Knee jerk is increased in both legs. Skin reflexes are increased.

Diagnosis.—First stage of tabes dorsalis.

CASE III—Record number 71834.—Mr. T. G. M., of Ohio. American; forty-four years old; single; newspaper man. Examined July 23, 1910.

Family History.—Father died of old age at eighty-four. Mother died of sunstroke at the age of sixty-four. No history of any neuropathic or psychopathic strain in the family.

Personal History.—Patient had the milder diseases of childhood, three attacks of pneumonia in early life and recovered from all these infectious diseases with no bad results. No acute infectious diseases in adult life. No other serious illness of any kind. Smokes from fifteen to twenty cigarettes daily, also cigars. No alcohol nor drugs. No history of any injury to the body. Denies having had syphilis. Had an attack of gonorrhea many years ago. Patient comes for examination and treatment on account of nervousness which he says has troubled him for many years. Lately he has been engaged strenuously in business and on one or two occasions has had attacks of numbness over entire body with dizziness; occasionally he has had headaches.

Present Illness.—For five or six years he has been troubled with what he calls sciatica in both legs. This comes on in the form of attacks which last a few hours. He described the pain as sharp, shooting and very severe in character. Also has these sharp pains in his left wrist. He is inclined to be depressed at times, and his mental vigor is depreciated somewhat.

His appetite is good; has some indigestion and some distress after eating; bowels are constipated. Circulation is fairly good. Has attacks of a burning sensation when passing his urine. Lately has noticed black spots in front of his eyes; wears glasses; hearing good; no trouble in the nose or throat.

Physical Examination.—Five feet eight inches tall. Weighs one hundred thirty-six pounds. Frame slight; muscles small; muscle tone reduced. Nutrition fair. Station and gait normal. Lymphatic glands are normal in size. Tongue badly coated. Teeth in fair repair. Chest well formed. Examination of lungs and heart negative. Contour of abdomen is flat; some tenderness in the epigastrium over the right side; liver and spleen not palpable; dulness over liver and spleen normal; lower border of stomach one and one-half inches above umbilicus; abdominal muscles relaxed; muscle tone diminished. Temperature 98.6°. Systolic blood pressure 132 millimeters; diastolic 98. Pulse 88. Urine negative except low specific gravity.

Examination of Nervous System.—Patient has had these sharp, shooting pains in both legs following along the course of the sciatic nerve for the last five or six years. When he has the attacks of this pain the skin is hypersensitive to touch and temperature. He is also very sensitive to heat and cold. There seems to be no objective loss to touch, pain, or temperature. Knee jerk is much exaggerated. Skin reflexes are present. Station and gait are good. Rhomberg sign not present; no staggering in walking.

Diagnosis.—Neuralgic form of tabes dorsalis.

CASE IV—Record number 63849.—Mr. F. D. E., Ohio. American; aged forty-three; married; occupation office work. Examined March 1, 1908, and July 12, 1909.

Family History.—Father died of cholera morbus and heat prostration at the age of sixty-eight years. Mother died of paralysis at seventy-three.

Personal History.—Patient had measles and mumps after adolescence; made good recoveries; no other infectious diseases; no other severe illness of any kind. Had syphilis fifteen years ago; uses tobacco—smokes and chews; has been a moderate user of alcoholic liquors; is rather a heavy eater, moderate in the use of meat; uses tea and coffee; eats rapidly.

Present Illness.—Patient comes here because of pains in the back and legs which appear periodically as a rule. These pains appeared first seven years ago and have occurred at intervals of three or four months ever since. During the last year he has been troubled to a greater extent with these pains in the back and legs. He describes the pain in the legs as sharp and shooting in character and as increased during the attacks by slight touches or manipulations of the skin, while firm pressure does not cause any trouble. The pain is usually worse in the back during the day and in the legs at night. He experiences no difficulty in walking. His appetite is usually good; no distress in stomach or bowels after eating. Bowels move every day. He is able to pass his urine without difficulty except that it takes a little longer to urinate than formerly. Has taken

antisyphilitic treatment—mercury and potassium iodid—several times. Has no headache, sleeps well. Eyesight fair, wears glasses. Hearing good; no trouble with the nose or throat.

Physical Examination.—Five feet nine inches in height. Weighs one hundred seventeen pounds; of fair development; skin dry; musculature fair; muscle tone reduced. Bones and joints normal; lymphatic glands normal. Chest and thoracic organs negative. Abdomen rather flat, muscles of abdomen relaxed and flabby, some tenderness in the epigastrium. The liver is easily palpable at the end of inspiration; right kidney palpable and mobile. Spleen not felt; dullness over spleen is normal. Lower border of the stomach one inch above the umbilicus. Tongue coated. Temperature 98.8°; pulse 98. Systolic blood pressure 148 millimeters; diastolic, 105. Urine negative except that he has considerable indolacetic acid. Blood examination shows some slight degree of simple anemia.

Examination of Nervous System.—Patient has had these sharp, shooting pains in his legs for the last seven years. Pain sense is diminished in skin below the knees. Patient does not feel pain when pricked with a pin. Tactile and temperature sensations are not diminished objectively. Skin is hypersensitive to touch and temperature during the attacks of pain. Right pupil is larger than left, and both pupils respond to light slowly. When striking patellar tendon there is an exaggerated reaction for a time or two, after this when the tendon is struck there is no response for an appreciable time, when a weaker reaction appears. Skin reflexes are present. When standing with feet together and eyes closed there is a slight swaying of the body. Patient walks well without staggering; walks a straight line with eyes open; has some difficulty in walking line with eyes closed. The superior and external recti of the right eye are slightly insufficient.

Diagnosis.—Tabes dorsalis.

CASE V—Record number 72152.—Mr. S. D., of Indiana. American; aged sixty-two; married; president of a bank. Examined August 14, 1910.

Family History.—Father and mother both died at the age of seventy-five. No history of any neuropathic or psychopathic strain in the family.

Personal History.—Patient had the milder diseases of childhood with good recoveries. No acute infections during adult life. About the age of thirty he passed what he says was twenty-six pieces of sandy material or gravel from the bladder, and at the same time he had peritonitis. He has had no other severe illness of any kind; has not been addicted to the use of alcohol or drugs; has used tobacco in moderation; has received no severe injuries to his body. Since the age of fifteen he has suffered from migraine, the attacks coming on periodically. In recent years these attacks are gradually disappearing. The last attack was two years ago. He had syphilis twenty years ago.

Present Illness.—Patient comes here to be relieved of severe neuralgic pains in the intercostal region extending around both sides. These pains began four years ago. He described the pains as occurring in attacks

at irregular intervals and as being very severe in character. The pain is located in the lower dorsal region of the back and extends around the trunk on both sides, more on the left than on the right. Occasionally he has sharp, shooting pains in the legs, also. These pains in the legs do not occur so frequently as those which extend around the trunk. His appetite is good; has some indigestion; bowels move daily. Sleeps well. Eyesight not as good as formerly; hearing is fair. Circulation good; no history of any trouble with the respiratory organs.

Physical Examination.—Five feet four inches tall. Weight one hundred thirty-two and one-half pounds; medium sized frame. Nutrition good. Skin normal; muscles fair size; muscle tone reduced. Glands normal size. Chest somewhat depressed in the upper right side. Expansion of chest fair. Respiratory sounds weak; small râles heard in the right side over fourth interspace. Heart sounds distinct, second pulmonic accentuated; apex beat not palpable; dullness normal. Abdomen normal; contour slightly obese; some tenderness in the epigastrium; liver and spleen not enlarged. Considerable tenderness on percussion along the spinal column over the sixth dorsal segment down on both sides and in the sacral region. Lower border of stomach one and one-half inches above umbilicus; temperature 98.6°; pulse 84. Considerable indican and indolacetic acid in the urine; in other respects, urine negative. Systolic blood pressure 203 millimeters; diastolic 173. Analysis of blood shows slight degree of simple anemia.

Examination of the Nervous System.—For the past three or four years he has had these sharp, shooting pains which he describes as neuralgic about the trunk and the lower dorsal region; also occasional attacks of pain in the legs. Pain sense is decidedly diminished in the legs, especially below the knees; a pin may be thrust in the skin without producing any pain. Temperature and tactile sense are not objectively reduced. Is somewhat hypersensitive to heat and cold when applied to the body in the form of baths. Has a tendency to stagger when walking in the dark. There is some static ataxia when standing with feet together and eyes closed (Rhombberg sign). Also cannot walk a straight line well with eyes closed. Both knee jerks are present and normal; plantar reflexes also increased; pupils respond sluggishly to light.

Diagnosis.—Tabes dorsalis

CASE VI—Record number 55409.—Mr. F. A. P., West Virginia. American; forty years of age; single; occupation, oil business. Examined October 19, 1910.

Family History.—Patient has two cousins on father's side in the asylum; also one other cousin and an uncle who died in the asylum; has a brother who has neurasthenia and a sister who has had one or two attacks of insanity. Father died of typhoid fever at the age of sixty-two. Mother living and healthy; has some rheumatism. Mother's sister had cancer; mother and father's brother had rheumatism.

Personal History.—Patient had the usual infectious diseases of childhood and made good recoveries from all of these; no fevers during his

adult life; no injuries; used alcoholic liquors excessively from 1890 to 1899; often intoxicated; quit for five years, then began again and has been irregular in drinking since. He has used tobacco some, but not much for two years. He has taken considerable hypnotics and other drugs to relieve nervousness and insomnia. Diet has been rather stimulating. Has had no other severe illness. No injuries to the body. Patient had syphilis twenty years ago, also has had gonorrhea several different times.

Present Illness.—For several years patient has had attacks of shooting pains in his legs, arms and about the trunk. These pains are aggravated by cold and by indigestion. More recently he has had spells of dizziness and general ill health. For the past few months he has not been as well as usual. Has been drinking, eating excessively, and dissipating generally during the past few months; had an attack of shingles last September on left side of forehead and side of head. This left some scars on side of face and head. Appetite is rather poor, digestion poor, bowels constipated, rectum negative. Has cold extremities, heart's action is irregular. Has catarrh of the nose and throat. Is very nervous and depressed mentally. Vision in the left eye not as good as previously. Hearing good; no noises or ringing in the ears.

Physical Examination.—Five feet eight and one-half inches in height. Weight in health one hundred and forty-two pounds; at present one hundred twenty-one and one-half pounds. Fair sized frame; skin pale; muscles rather under size; muscle tone diminished; bones and joints normal. Heart tones are somewhat weak; radial arteries are slightly palpable. Lungs negative. Abdomen sunken; abdominal muscles relaxed; muscle tone reduced; liver and splenic dulness normal; no tenderness in the abdomen or along the lower margin of the liver.

Examination of the Nervous System.—Has attacks of shooting pains in the legs, arms and body as above described. These pains he describes as quite severe in character. Pain sense is diminished in the skin of the legs so that when stuck with a pin he feels it only as touch and not as pain. There is no loss of tactile or thermic sense. Knee jerk is diminished in the right leg and present in the left. Skin reflexes, plantar and abdominal are increased, particularly in the plantar of the left leg. He stands well with his feet together and eyes closed. Has no difficulty in walking. Walks a line quite well with eyes closed. Pupils are unequal, left dilated; both respond to bright electric light sluggishly.

Diagnosis.—Tabes dorsalis.

CASE VII—Record number 64430.—Mr. R. M., of Arizona. Examined November 22, 1910.

Family History.—Father is seventy years of age; has some rheumatism. Family is long lived. One brother died aged fourteen years from an injury; two sisters died of consumption; two brothers and two sisters living and healthy. No other hereditary diseases in the family.

Personal History.—Patient had the milder diseases of childhood, with good recoveries. No fevers nor serious illness during adult life; no

injuries. Has smoked moderately for years; none for the past three months; no drug habits. Has been a hearty eater; eaten considerable meat; used tea and coffee and highly seasoned foods. Hasty eater and irregular at meals. Patient has had trouble with varicocele on the right side for the last twenty years producing dragging down sensation. One year ago he had cystitis. Had gonorrhea two or three different times in the last ten years. No syphilis.

Present Illness.—Two months ago he began to have some unsteadiness in his walking, tingling in his feet and uncomfortable sensations in his legs with a pain across the small of his back, at times slight dribbling of urine; has had no severe, sharp shooting pains. Has been very nervous and worried; easily excited, despondent, and depressed. Respiratory and circulatory system negative; appetite good; tongue coated; teeth in good repair; digestion good; bowels move daily. Rectum negative except some prolapsus; sleeps well; no headaches. Eyes and ears negative.

Physical Examination.—Five feet seven inches tall. Weight in health one hundred and seventy-eight pounds. Fair size; good flesh; skin is smooth; bones and joints and glands are normal except some soreness in the hips. Chest is well developed; heart tones are a little indistinct—second aortic is accentuated; radial arteries palpable. Lungs negative. Abdominal muscles firm; stomach one inch above umbilicus; liver and splenic dulness normal; muscles good size and fair tone. Temperature normal; pulse 80. Systolic blood pressure 150 millimeters; diastolic, 120 millimeters. Red cells and hemoglobin slightly below normal. Analysis of urine negative except small amount of indican.

Examination of the Nervous System.—As above stated, his present nervous trouble, as far as he knows, began two months ago, with unsteadiness in walking, tingling in the feet, uncomfortable sensation in legs, pain across small of back, at times dribbling of urine; no severe pains in the legs or in any other part of the body. Pain sense is slightly diminished in the legs; does not feel the prick of a pin readily. Has no objective loss of tactile or temperature sense; no hypersensitiveness to heat or cold or touch; no sharp, shooting pains. Has a slight drawing sensation around the lower part of the trunk. Knee jerk is absent in both legs by reinforcement; tendon Achilles reflex absent; skin reflexes present, apparently normal; left pupil dilated; neither pupil responds to light but both respond to accommodation. This patient was examined by one of my colleagues May 11, 1908, and the record of the case at that time shows that the left pupil was dilated and responded sluggishly to light while both knee jerks were exaggerated.

Diagnosis.—*Tabes dorsalis.*

(1) These above cases are reported for the purpose of illustrating the unusual changes in the knee jerk in *tabes dorsalis* and also to call attention to other symptoms which are frequently passed unnoticed or given little attention by the examining physician. As is well known, the knee jerk is entirely abolished in by far the larger number of cases of *tabes*

dorsalis, but a consideration of the above cases together with quite a number of other cases which the writer has seen and examined in the past show very clearly that in addition to having a complete loss of the knee jerk we may have the knee jerk retained in a normal manner or we may have any conceivable departure from the normal knee jerk in a comparatively small number of cases of the disease. Thus from the above cases and others not here reported, it may be concluded that the knee jerk may be normal in both legs; it may be normal in one leg and diminished in the other; it may be normal in one leg and exaggerated in the other; it may be diminished in both legs, may be exaggerated in both legs, or the knee jerk may be delayed, as illustrated in one of the above cases.

(2) The above cases also illustrate that the skin reflexes may be increased in tabes dorsalis, particularly the plantar, cremasteric and abdominal, and especially in the very early stages of the disease or in that form of tabes which is usually described as the neuralgic form or tabes dolorosa. In some of the cases above reported the plantar and abdominal skin reflexes were decidedly increased. I regard this as one of the symptoms of tabes not so important nor so frequently seen as the cardinal symptoms, but quite as important and quite as often seen as many of the other symptoms that are described in textbooks and in the literature as minor symptoms. Very little attention has been directed to this particular symptom in literature, but in the experience of the writer it is found in not a few cases of tabes dorsalis, particularly in the early stages or in the neuralgic form, and is of sufficient clinical importance to be of considerable value in diagnosis.

(3) In some of the cases above reported a marked diminution is found in the pain sense. The patient could be pricked with a pin without producing pain. This, of course, is recognized as one of the quite common symptoms of tabes dorsalis, but we wish here to emphasize the fact that it was found in the above cases where there was little or no ataxia, where the patient could walk quite as well as ever, and where there was no other anesthesia of any kind. Yet there was a very decided loss of the pain sense in the legs, especially below the knees, illustrating the fact that this diminution or loss of the pain sense may be quite a prominent symptom in the very early stages of the disease in some cases before any ataxia can be discovered, and where most of the other symptoms are slight.

(4) Another symptom which the writer wishes to call attention to here as a part of the symptom-complex of tabes is the rapid pulse. This he has observed in a large number of cases. Here again we find a symptom which does not seem to be much noticed if we are to judge from the reports in the literature. The symptom is more apt to be present in the earlier stages of the disease or in the neuralgic form, and should be regarded as part of the symptom-complex of tabes dorsalis.

(5) Case V was complicated with herpes zoster along the distribution of the sensory branch of the trigeminal nerve on the left side of the head and face. Herpes zoster is caused by an inflammation of the ganglion at the roots of the sensory nerves. Here the peripheral sensory neuron is

the seat of the disease—the same neuron which is primarily affected in tabes dorsalis. It is therefore of interest to note that these two diseases, both of which are dependent upon a lesion of the peripheral sensory neuron, are sometimes associated together in the same individual.

THE RELATION OF PREMATURE RUPTURE OF THE AMNIOTIC SAC TO PUERPERAL SEPSIS.*

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THE prevention of puerperal sepsis is a problem that has for many years called forth a great deal of discussion. Holmes' in 1843, and Semmelweis' in 1846, by their recognition of the contagiousness of puerperal sepsis, introduced an era of advancement such as had never before been witnessed by the medical world. This was pioneer work and it only remained for others to follow and lift it to its present high state of development.

In recent years the interest in the prophylaxis of puerperal sepsis has been somewhat on the decline. This is probably due to several causes. The introduction of antiseptics and asepsis into obstetrics has opened up many other fields of clinical investigation. Placenta previa, contracted pelvis, toxemias of pregnancy, operative obstetrics,—the investigation of all of these has been made possible by the aseptic era in obstetrics.

Furthermore, it is customary to assume that the question of the prophylaxis of puerperal sepsis has been completely solved, and like other solved problems, needs no further consideration. We think that all we need to do is to keep our hands clean, and that then our patients will not have sepsis. But that there are other problems to be considered is shown by the fact that occasionally we will see a case of puerperal sepsis in spite of rigid aseptic precautions. We have probably all seen or heard of authentic cases of sepsis where the obstetrician has not made a single vaginal examination. Usually we look upon such cases as autoinfections, and do not attempt to explain the occurrence of the sepsis. The fact that an obstetrician with a good aseptic conscience will occasionally have a case of sepsis proves that there is still room for investigation.

The object of this paper, however, is not to consider puerperal sepsis in general, but to discuss any possible etiologic relation that may exist between a premature rupture of the membranes and a subsequent puerperal sepsis.

The amniotic sac consists of two layers, an inner thin layer, the amnion, and an outer thick layer, the chorion. These are fused together and make up the structure known as the "membranes." During normal pregnancy this, with the placenta, forms a closed sac, and contains the amniotic fluid surrounding the fetus. The cervical canal is normally closed by the "plug of mucus."

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The amniotic fluid is a protective for the fetus, and during labor is the medium for the transmission of the expelling forces which cause dilatation of the cervix. The elastic bag fits well into the cervix and lower uterine segment and makes it an admirable dilator for the soft parts. After the cervix is dilated the amniotic sac is of little use, and usually ruptures. Any rupture occurring before the cervix is dilated is, strictly speaking, a premature rupture. However, in the present discussion we will have reference only to cases where the rupture occurs before the beginning of labor, or very early in labor before dilatation of the cervix. In these cases we have to deal with a so-called dry labor.

Obstetricians have never expressed definite opinions as to any relation a premature rupture might bear to a subsequent puerperal sepsis. A rather hasty review of recent obstetric works fails to show any definite statement. Hirst³, Davis⁴, Jellett⁵, Moran⁶, Williams⁷, Edgar⁸, Galabin and Blackner⁹, and others dismiss the subject without a word as to any relation between premature rupture of the membranes and puerperal sepsis. It is quite safe to assume that the neglect to mention the relationship does not mean that such is not recognized. Indirect communication with certain of these authorities shows that some relation between the two is believed to exist. However, not much importance is attached to this connection and no attempts at prophylaxis are usually made.

Meyer-Ruegg¹⁰ reviews twelve cases in which several months elapsed between the rupture of the membranes and the birth of the child. While it is rare for pregnancy to continue after rupture of the membranes, these undoubtedly are authentic cases. In speaking of sepsis, the author states that the danger of infection is very slight, if it exists at all.

Demelin¹¹ found in a series of four thousand deliveries that the membranes rupture prematurely in nearly ten per cent of the cases, and if this occurred twenty-four to forty-eight hours before delivery, the morbidity was definitely increased. If the rupture took place two to five days before delivery, infection occurred in no less than eleven per cent of cases.

Peterson¹² has called attention to and emphasized the fact that a premature rupture of the amniotic sac predisposes to a subsequent puerperal infection.

Routh¹³ in his recent article on Cesarean section, gives some very interesting statistics. In his studies of mortalities following this operation he has found a great difference in percentage mortality between "clean" and "infected" cases. Among the "infected" cases he classifies those where attempts at delivery per vaginam and many vaginal examinations had been made prior to the Cesarean section. Besides the "clean" and "infected" cases he classifies another group as "suspect" cases. These "suspect" cases differ from the "clean" cases in the fact that the membranes have ruptured. According to Routh's statistics the mortality of Cesarean section performed after the membranes have ruptured is ten and eight-tenths per cent compared with two and nine-tenths per cent in similar cases but with the membranes intact. A consideration of such reports must

bring us to the conclusion that an early rupture of the membranes does in some way predispose to infection.

As a basis for this discussion a careful study has been made of the last three hundred patients confined in the obstetric clinic of Professor Peterson at the University of Michigan Hospital. Careful notes are kept concerning the convalescence of patients, as well as careful temperature records. A staff of specialists in the various departments of the hospital is always available for consultation in doubtful cases. It is not always easy to differentiate between a slight rise in temperature due to puerperal sepsis and a similar rise in temperature due to other causes. Whenever the temperature reached 101° , it was considered an evidence of puerperal sepsis unless some other definite cause for the rise in temperature was discovered. In most of the "mild" cases the rise in temperature and pulse was the only evidence of sepsis, and if this had occurred in practice and a careful temperature record had not been kept they would probably not have been classed as septic cases. Practically all the patients were illegitimately pregnant and a large per cent had venereal disease.

Among three hundred confinements premature rupture of the membranes occurred thirty-eight times, or in about twelve per cent of all the cases. The longest interval between the rupture of the sac and the beginning of labor was ninety-six hours. In many cases the pains began immediately after the rupture. The labors in these thirty-eight cases were not excessively long, in fact, hardly the average when we consider that nearly all the patients were primiparæ.

In two hundred sixty-two cases the membranes ruptured normally. Among these there were five cases of puerperal sepsis, a percentage of one and nine-tenths. In four of these the sepsis was mild while in one it was severe. Therefore among the cases where the membranes were intact during the greater part of the first stage, there was a mild sepsis in one and five-tenths per cent of all cases, and a severe sepsis in four-tenths per cent of all cases.

Among the thirty-eight cases in which the membranes ruptured prematurely there were eight cases of puerperal sepsis, a percentage of twenty-one. In three of these eight patients the sepsis was severe while it was mild in five cases. Stated in percentages, it would mean that of the thirty-eight patients in which the membranes ruptured prematurely, eight per cent had a severe sepsis, and thirteen per cent had a mild puerperal infection.

The mortality in the three hundred cases was nil. One patient was lost sight of, however, before complete recovery and the subsequent history is unknown.

One is impressed with the difference in the morbidity in the two classes of patients. As the method of treatment was the same in both classes of patients and the cases were all scrutinized from the same viewpoint, one feels that the comparison must be a fair one. It means that puerperal sepsis occurs fully ten times as frequently after premature as

it does after normal rupture of the membranes. It does not seem that this is merely a coincidence. The comparisons, tabulated, would be as follows:

| | Number of
cases of sepsis | Mild
sepsis | Severe
sepsis |
|---|------------------------------|----------------|------------------|
| Premature Rupture of
Membranes (38 cases)....(21%) | 8 | 5
(13%) | 3
(8%) |
| Normal Rupture of
Membranes (262 cases)..(1.9%) | 5 | 4
(1.5%) | 1
(0.4%) |

It is seen from the table above that mild sepsis occurred eight times as frequently after premature rupture as after normal rupture. As previously mentioned, the only indication of sepsis in these "mild" cases was the rise of temperature and pulse, which could not be attributed to any other cause. These patients did not feel sick, and the sepsis did not necessitate a longer stay in the hospital than was required for patients with a normal puerperium.

Severe sepsis occurred about twenty times as often in the cases where the membranes ruptured early as in the cases with normal rupture. These were grave cases of infection and the patients were seriously sick for many weeks.

Why a premature rupture of the membranes should predispose to a subsequent sepsis has not been positively determined. A dry labor is usually more difficult, and as the presenting part is not a good dilator, the soft tissues may tear rather than stretch. Thus, excessive obstetric trauma may predispose to sepsis. It is also possible that a premature rupture may in some cases be directly due to an existing infection. A sepsis following the confinement might be accredited to the premature rupture while in reality the early rupture was the result of the infection, and not the cause. But we know from microscopic examination of the secundines that premature rupture may often occur with apparently healthy membranes.

The bacteriologic content of the vagina during pregnancy has been the subject of considerable investigation. The results obtained have been so at variance that they complicate rather than elucidate the subject. Williams¹ considers that the normal vaginal secretion during pregnancy is free from pathogenic germs, and for that reason looks upon "auto-infection" as an impossibility. Döderlein and Bumm find streptococci and staphylococci in the normal vaginal secretion of some pregnant patients. Williams considers that the finding of these bacteria is due to an error in technic due to contamination. On the other hand Döderlein² and Bumm³ claim that the bacteria can be demonstrated if the proper culture media is used. Equally variable are the results when the flora of the normal puerperal uterus have been investigated. Very little is known concerning the bacteriology of the vagina during labor, and we have no knowledge concerning the bacteriology of the amniotic sac after the rup-

ture of the membranes. Practically all investigators agree that the vulva is very frequently the abode of pathogenic streptococci and staphylococci.

The settlement of the question as to the presence or absence of pathogenic bacteria in the vagina might alter our ideas as to how an infection takes place. Yet it should not affect it radically. Granted, for the sake of argument, that the normal vaginal secretion is free from pathogenic germs. After one vaginal examination this condition may be changed. If the criticism of Williams concerning the finding of pathogenic bacteria in the vaginal secretion by Döderlein and Bumm is correct, and if it is so difficult to prevent contamination even when the vagina is opened widely by means of a sterile speculum, then we can readily assume that the vagina will be contaminated with vulval bacteria after making the first vaginal examination. No one has as yet been able to sterilize the vulva absolutely. Whether or not the vagina is normally free from pathogenic bacteria, it surely is contaminated with vulval bacteria after a vaginal examination has been made.

During normal pregnancy the uterine cavity is securely protected from the outside world by the "plug of mucus." This probably prevents infection from going up not only because of the mechanical barrier it forms, but because of the presence of phagocytes which may actually destroy the invading organisms and prevent infection of the amniotic cavity. The open canal which is present following the rupture of the membranes would expose the amniotic cavity to an infection that might exist in, or have found entrance into, the vagina. Nature's efficient barrier would be lost.

If the vagina were free from pathogenic germs there would be very little likelihood of a puerperal infection developing. The truth of the matter is that the vagina often does contain pathogenic bacteria, and most likely they are the result of contamination from the vaginal examinations. The importance of having our hands clean has been impressed upon us so strongly that we feel that this is about all that is necessary, and we are quite fearless about making these examinations. This is especially so since in most cases it is done with apparently no untoward results. When the membranes are intact any vulval infection we may introduce does not go up any higher than the cervix, but if the amniotic cavity be open it can be easily infected. If enough time elapses before the emptying of the uterus the infection of the membranes will extend to the decidua and into the sinuses before the contraction of the uterus effectually closes the channels for further extension. It would seem that although vaginal examinations can be made with comparative safety in a normal labor, the examination conducted with the same care and precaution becomes more perilous in case the membranes have ruptured prematurely. The vulva is the most likely source of infection in these cases, as we cannot absolutely sterilize these parts. The wearing of sterilized gloves does not insure against this infection. The question of the bacteriology of the vagina is of little importance if one makes vaginal examinations on these patients. In either case the examining finger in the os carries up whatever infection is found on the vulva. The first examination thus made is

sufficient to plant the contamination in the vagina. Fortunately, every vulva does not harbor these pathogenic organisms and therefore not every patient is infected. The open uterine cavity with the absence of the mucus plug, together with contamination from the vulva carried up by the examination finger seems to be the important factors in the production of sepsis after the premature rupture of the membranes.

During the puerperium the birth canal is open, and if the above explanation is correct, one might wonder why infection does not pass upward in all cases after delivery. We know that streptococci have been obtained (if not there, they must have been introduced at the time) from the vagina and even from the uterine cavity of patients who were having an afebrile puerperium. In these cases the organisms find no opportunity to enter the uterine sinuses because of the contraction of the uterus which closes them effectually. While the child is in the uterus the sinuses are open and an infection of the membranes more readily finds a path of extension.

In dealing with these patients all that we can hope to accomplish is to keep infection from entering the vagina. After the accident occurs we should prevent the patient from infecting herself. This can be done by removing the source of infection as thoroughly as possible. The vulva should be shaved, scrubbed, disinfected, and protected from contamination of the clothing by the use of a sterilized pad. The patient should be cautioned about touching her vulva and extreme care should be exercised when the patient is at stool. In a hospital the ordinary commode should not be used, but a disinfected bedpan substituted. Vaginal examinations should be omitted, always remembering that we cannot sterilize the vulva, and that a vaginal examination means the introduction into the vagina and cervix of whatever infection there may be on the vulva. If examinations are necessary they should be made per rectum. It requires a little experience to recognize the parts by this route, but with a little practice it becomes a very satisfactory way of making examinations, and certainly reduces the chances of introducing infection to a minimum. Krönig, with the object of reducing the risk of infection, has recently advocated the routine adoption of rectal examination during pregnancy and labor and claims to have observed a considerable reduction in the morbidity since this method was adopted.

It would seem that the following conclusions and recommendations are justifiable:

- (1) Premature rupture of the amniotic sac predisposes to a subsequent sepsis.
- (2) The importance of this fact is not sufficiently recognized or emphasized.
- (3) The vagina is probably infected by digital examinations and the open canal allows infection to extend upward.
- (4) Strict aseptic precautions should be observed after this accident.
- (5) Vaginal examinations should be omitted.
- (6) All necessary examinations should be made per rectum.

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- ⁹GALABIN and BLACKNER: "The Practice of Midwifery," New York, 1910, pages 997-1005.
- ¹⁰MEYER-RUEGG: "Eihautberstung ohne Unterbrechung der Schwangerschaft," *Zeitschrift für Geburtshülfe und Gynäkologie*, 1904, LI, 419-468.
- ¹¹DEMLIN: Quoted by A. W. W. Lea, "Puerperal Infection," London, 1910, page 81.
- ¹²PETERSON, REUBEN: "Transactions of the Clinical Society of the University of Michigan," Ann Arbor, I, 1909-10, page 55.
- ¹³ROUTH, A.: "Caesarean Section and its Alternatives," *The Journal of Obstetrics and Gynaecology of the British Empire*, 1911, Volume XIX, pages 235-252.
- ¹⁴DÖDERLEIN und WINTERNITZ: "Die Bakteriologie der puerperalen Sekrete," *Beiträge zur Geburtshülfe und Gynäkologie*, 1900, III, 161-174.
- ¹⁵BUMM and SIGWART: "Untersuchungen über die Beziehungen der Streptococcen zum Puerperalfieber," *Beiträge zur Geburtshülfe und Gynäkologie*, 1904, VIII, 329-336.

1131 Huron Street East.

TRANSACTIONS.

DETROIT SOCIETY OF NEUROLOGY AND PSYCHIATRY.

STATED MEETING, OCTOBER 6, 1910.

THE PRESIDENT, EDMUND A. CHRISTIAN, M. D., IN THE CHAIR.

REPORTED BY CHARLES W. HITCHCOCK, M. D., SECRETARY.

READING OF PAPERS.

SOME OBSERVATIONS ON CASES PRESENTING KORSAKOFF'S SYNDROME.

DOCTOR DAVID R. CLARK read a paper on this subject. (See page 49.)
DISCUSSION.

DOCTOR COLONEL B. BURR, in discussion, referred to the fact of his seeing no case of Korsakoff's disease during a three weeks' stay in Munich there being no admission of such a case during that time.

DOCTOR EDMUND A. CHRISTIAN thought the records of the Eastern Michigan Asylum would show about two admissions of this disease each year. He questioned the value of the addition to our classification of this syndrome as a disease.

DOCTOR JOHANN FLINTERMANN mentioned a late statement by Kraepelin to the effect that Korsakoff's psychosis was extremely rare in Munich.

DOCTOR ALBERT M. BARRETT recalled that while alcohol seemed the most common factor in etiology, yet the syndrome was not very uncommon in cases lacking a history of alcoholism.

DOCTOR WILLIAM H. RILEY cited two cases which had come under his observation.

THE CLASSIFICATION OF THE FEEBLE-MINDED.

DOCTOR GEORGE L. CHAMBERLAIN read a paper bearing this title, it being a presentation of a lately proposed division into idiots, imbeciles, and morons:

REPORTS OF CASES.

DOCTOR AUGUSTUS IVES exhibited a patient, aged six years, who manifested some signs of mental enfeeblement and was presented as a case of suspected acromegaly.

It was thought by Doctors Inglis, Hitchcock, and Burr in discussion that the clinical evidence was hardly sufficient to justify a diagnosis of acromegaly and that the girl belonged simply in the large class of the mentally defective.

DOCTOR CHARLES W. HITCHCOCK, with the idea of evoking discussion, presented a case of general paresis, with apparently frank denial of luetic history, in which the diagnosis was later confirmed by lumbar puncture, an examination of the cerebrospinal fluid showing a well-marked lymphocytosis.

DOCTOR THEOPHIL KLINGMANN reported a case of tumor of the cord.

DOCTOR WILLIAM H. RILEY reported a case of Raynaud's disease.

STATED MEETING, DECEMBER 1, 1910.

THE PRESIDENT, ALBERT M. BARRETT, M. D., IN THE CHAIR.

REPORTED BY CHARLES W. HITCHCOCK, M. D., SECRETARY.

READING OF PAPERS.

A REPORT OF SEVEN CASES OF ATYPICAL TABES.

DOCTOR WILLIAM H. RILEY presented a paper on this subject. (See page 268.)

DISCUSSION.

DOCTOR CHARLES W. HITCHCOCK reported two cases of atypical tabes, one of persistent knee-jerk in a well-marked case and a second case presenting characteristic symptoms but with uncommonly little impairment.

DOCTOR CARL D. CAMP would have hesitated to diagnose these cases as tabes, since he regards the differential distinction between tabes and syphilitic cord-disease as difficult. In the latter the spinal arteries become blocked and a softening occurs.

DOCTOR WILLIAM H. RILEY commented on his cases: (a) As to alterations of the knee-jerk, he held that while usually lost it may be normal in both or normal in one and otherwise altered in the other. It may also be exaggerated and the two may not correspond. (b) The altered skin-reflexes are also interesting as likewise the fact of (c) quickened pulse, not infrequently observed. (d) The quickening of the pain-sense in the early stages is often overlooked. (e) The matter of gastric crises is often misinterpreted by and sometimes operated upon by the surgeon.

ACUTE POLIOMYELITIS.

DOCTOR GUY L. CONNOR read a paper bearing that title. (See page 11.)

DISCUSSION.

In discussion of Doctor Connor's paper, Doctor Camp said he had been doing lumbar punctures in poliomyelitis confirming the increase of the protein content of the cerebrospinal fluid.

DOCTOR WARREN L. BABCOCK wished to emphasize the point that a fair proportion of cases of poliomyelitis in Detroit had occurred in adults, citing one case now in Grace Hospital in a man of thirty.

DOCTOR THEOPHIL KLINGMANN thought we ought to distinguish between sporadic cases and epidemic poliomyelitis as possibly not being due to the same cause.

DOCTOR CHARLES W. HITCHCOCK cited a case of well-marked poliomyelitis in an adult, a farmer of twenty-two.

CHRONIC ALCOHOLISM RESULTING IN PSYCHOPATHOLOGIC SYMPTOMS PROBABLY EPILEPTOID IN CHARACTER.

DOCTOR JUSTIN E. EMERSON read a paper on this subject. (See page 305.)

DISCUSSION.

DOCTOR AUGUSTUS W. IVES cited an alcoholic patient who sought voluntarily custodial care upon the onset of alcoholic craving.

DOCTOR EMIL AMBERG briefly discussed Doctor Emerson's paper, commenting on the irresponsibility of epileptics.

DOCTOR DAVID R. CLARK, in discussing Doctor Emerson's paper, judged the salient point of the case to be his attacks of irritability which Kraepelin considers a psychic equivalent for epilepsy.

DOCTOR CARL D. CAMP referred to Doctor Starr's attitude as to epilepsy, in which he holds that epilepsy itself is not due to gastric disturbance, although epileptic attacks may be so caused.

DOCTOR EMERSON closed the discussion.

REPORTS OF CASES.

DOCTOR DAVID R. CLARK presented a case of cerebral lues treated by sodium cacodylate, with remarkable and prompt improvement. The patient had been almost comatose, untidy in habits, and oblivious of the

proprieties but now exhibited very fair self-control, though still somewhat emotional and a trifle ataxic.

DOCTOR JOHANN FLINTERMANN presented a patient, aged thirty-seven, with spastic paresis, in whom eight years ago his mother first noticed a stiffening of gait which has been since slowly progressive. Knee-jerks are exaggerated. Achilles reflex exaggerated, cremasteric and abdominal reflexes normal, no Rombergism, no bladder symptoms, no nystagmus, no Argyll-Robertson pupil, no tremor, no atrophy, no sensory symptoms. Mother died at sixty-seven after a progressive impairment of gait with some pain, bladder symptoms, et cetera. A brother, forty-one, exhibits much the same symptoms in a much less pronounced degree. These cases present the characteristic picture of hereditary spinal paresis. Differential diagnosis is from caries of vertebræ, syphilitic spastic paresis, multiple sclerosis, amyotrophic lateral sclerosis and Little's disease.

DOCTOR ALBERT M. BARRETT referred to the cases of spastic paresis which he had seen postmortem in which there was much more than a degeneration of the pyramidal tracts, the cerebellar tracts being often involved and a distinct meningitis present.

DOCTOR BARRETT and DOCTOR FLINTERMANN both commented upon the common frequency of remission quite marked in general paresis.

DOCTOR FLINTERMANN commented further upon the differential diagnosis of spastic spinal paresis from Little's disease, in the latter the changes beginning very early, soon after birth.

STATED MEETING, FEBRUARY 2, 1911.

Held in the Medical Amphitheatre of the University Hospital, Ann Arbor.

THE PRESIDENT, ALBERT M. BARRETT, M. D., IN THE CHAIR.

REPORTED BY CHARLES W. HITCHCOCK, M. D., SECRETARY.

READING OF PAPERS.

MENTAL DISTURBANCE.

DOCTOR ALBERT M. BARRETT gave a clinical demonstration of three cases of mental disturbance. (See page 311.) He also showed some histologic specimens:

- (a) Glioma of pia mater containing ependymal cells.
- (b) Juvenile general paresis.

DOCTOR CARL D. CAMP gave a neurologic clinic.

STATED MEETING, APRIL 6, 1911.

THE PRESIDENT, ALBERT M. BARRETT, M. D., IN THE CHAIR.

REPORTED BY CHARLES W. HITCHCOCK, M. D., SECRETARY.

THE PITUITARY BODY.

DOCTOR CHARLES W. HITCHCOCK read a paper bearing this title, the following being an abstract thereof:

Concerning the pituitary gland, or hypophysis cerebri much study and more speculation has been indulged in but accurate knowledge has only of late given promise of possible development.

Of its two parts, the anterior (nonnervous) is derived from Rathke's pouch of the pharyngeal ectoderm, the posterior (the nervous portion) from the midbrain ectoderm. The two have different blood supplies.

The anterior is the larger and resembles in structure the thyroid body. The posterior lobe contains connective tissue, blood-vessels, pigmented cells, and also cells like those of the anterior portion. Relations with the thyroid and other ductless glands have long been suspected and of late more or less accurately investigated.

The physiology of the hypophysis has proven a complex affair and is still rather unsettled and in need of further study. Of American investigators, Cushing has been especially active in various researches. He has found that a total hypophysectomy is fatal, soon or late, and this fact, of course, puts decided limitations and caution upon its surgery. Cushing also found the reaction following the injection of the glandular extract more enduring than that produced by adrenalin and accompanied by a definite showing of the pulse. Like adrenalin, it dilated the pupil.

Contrary to the oft asserted dictum that acromegaly establishes a diseased pituitary body, Cushing asserts that this is by no means proven as yet. The secretion of the posterior lobe he finds not so vitally essential to physiologic balance as that of the anterior portion. While the total extirpation of the anterior portion leads to death, its partial removal disturbs metabolism, often causing adiposity and a kind of infantilism or retrogression changes. Some of the changes caused may be due to changes in other glands secondary to the disturbance of the hypophysis. Thyropituitarism due to extra activity of the pars anterior and indicated by conditions of overgrowth, gigantism, et cetera, ought to be differentiated from hypopituitarism.

Parhon and Golstein have studied the interrelation of the hypophysis and other glands of internal secretion except the thyroid, and while these relations are not as yet determined with great definiteness, they regard it as proven that there are close relations between the sexual organs and the pituitary body. Relations with the pancreas they also think quite close. The definite determination of the various interrelations still presents problems for future study.

DeLille, who has studied the functionary of the hypophysis, likewise proclaims the anterior lobe as the active part. He finds large doses of the hypophyseal substance quite toxic but that ordinary physiologic doses may be given without great risk.

A French investigator, M. de Cyon, advances the belief that the hypophysis produces several active substances. One, hypophysin, produces a strengthening and slowing of the pulse, accompanied by increase of blood pressure. DeLille observes that these extracts stimulate metabolism, modifying the excretion of nitrogen, calcium, phosphorus, et cetera.

The effect of intraperitoneal injections of an extract of the whole gland upon other organs has been noted, small doses keeping the hypophysis in action for six, ten and fourteen months. The suprarenals hypertrophied, though their function was lessened. The thyroid showed vari-

ous changes and a condition, also, of abated function. The liver and lungs were somewhat congested.

Pal studied the effect of extracts upon the arteries of cattle and found similar effect to that of adrenalin upon a number of the arteries but upon the vessels of heart and kidneys quite an opposite effect.

Crowe and Cushing noted progressive failure in dogs in whom they had transplanted the hypophysis into other tissues.

Cushing and Goetsch found in the cerebrospinal fluid a substance giving the same reactions as those produced by the extract of the posterior lobe and believe that thus its secretion may find the way out.

Houghton and Merrill confirmed a diuretic action of the active principle of the gland.

Wiggers finds the pituitary extract to possess advantages over adrenalin as a pressure raising agent.

Münzer classes the pathologic changes in the pituitary as either atrophic, hypertrophic, or due to tumor (mechanical disturbance).

Hecht calls attention to our increase in knowledge of pituitary neoplasms and reports a case. They are slow growing and vary much in size. They may excoriate the sella turcica and penetrate through the base even into the nasal sinuses. The symptoms may be very little localizing. Ocular palsies and pupillary disturbances are common.

Halstead reported a case successfully operated and presented his patient six months after operation, with great improvement in vision, et cetera, and described his method in detail.

Aldren Turner and Grainger Stewart discuss interestingly the ocular and other changes incident to hypophyseal tumors, the headaches, optic neuritis, mental impairment, even complete blindness, et cetera.

The physiologic chemistry is still largely undetermined. These various researches hint at the large amount of work being done and promise greater knowledge of this obscure organ at no distant day.

MULTIPLE SCLEROSIS, WITH REPORT OF A CASE.

DOCTOR JOHANN FLINTERMANN read a paper on this subject, and remarked particularly upon its not infrequent difficulty of diagnosis.

DISCUSSION.

DOCTOR HITCHCOCK, in discussion, cited a case diagnosed by him as multiple sclerosis, in which the mental impairment was much in evidence.

DOCTOR HUGO A. FREUND briefly discussed Doctor Flintermann's case.

REPORTS OF CASES.

DOCTOR BARRETT reported a case resembling Alzheimer's disease, in which plaques were found scattered through the brain associated with a peculiar neurofibril degeneration. Only recently, from Alzheimer's laboratory, has appeared a report upon one hundred senile cases. Alzheimer reported the case of a patient aged about fifty-one who showed these plaques which while commonly found in senile cases are also found now and then in

other cases. This patient was admitted to the Eastern Michigan Asylum at thirty-five and died there two years later. She appeared demented or confused, would not get out of the way of vehicles in the street, gait was clumsy and impaired, could not stand with feet together, even with eyes open, the speech was indistinct, slow and stammering, elbow and wrist, and patellar reflexes exaggerated; Babinski reflex on one side. She appeared much demented, speech was spasmodic and accompanied with much tremor of face. She leaned to the right and would fall off chair to the right if not tied in. She had one or more convulsive attacks. She became in time quite helpless with great muscular rigidity, and later the Babinski sign was present in both feet. She died October 31, 1910. Her cerebrospinal fluid, possibly due to marked atrophy of the brain, was much increased. The plaques found and the degeneration of the neurofibrils were not to be distinguished from those seen in senile cases. These plaques were here for the first time found in the cerebellum. The cord changes differ somewhat from those seen in amyotrophic lateral sclerosis.

DOCTOR CHRISTIAN inquired what cerebellar symptoms corresponded to the changes there noted and it was thought that the gait changes could be thus correlated. He had submitted the patient in life to Doctor Barrett for diagnosis and he had suggested amyotrophic lateral sclerosis.

DOCTOR EMIL AMBERG reported a case of mastoiditis, showing mental symptoms resembling those seen in collapse delirium, which was discussed by Doctor Camp who had seen a somewhat similar case, and by Doctor Flintermann who recalled a case of tubercular meningitis with similar symptoms.

DOCTOR CARL D. CAMP reported a case of acute internal hydrocephalus due to obstruction by brain tumor, in which a right hemiplegia, headache, vomiting, dizziness and an ensuing stupor were prominent symptoms. Sensory changes were found and carefully outlined at various examinations. Doctor R. Bishop Canfield was asked to operate, with the tentative diagnosis of brain abscess, and some mental improvement was noted. Later a frontal sinus operation was done and considerable pus removed, with a disappearance of the leukocytosis but no abatement of other symptoms. A later exploration through the first wound of operation evacuated considerable thick blood-stained fluid, and after this she returned to a mentally normal condition, only to become again gradually stuporous, from which state she recovered temporarily again after a second puncture, showing, however, a transcortical optic aphasia and later dying. The autopsy showed clearly—(a) the cyst that had been punctured and which proved to be a much dilated posterior horn of the left lateral ventricle, and (b) a tumor which had produced the obstruction leading to the hydrocephalic condition. This tumor proved to be a glioma and occupied the hypothalamic region. There was apparently no edema of the brain, in general.

DOCTOR BURR, having recently visited the Columbia, South Carolina, Asylum, said that he had lately seen there a number of cases of pellagra, which closely correspond to the clinical picture here.

ORIGINAL ABSTRACTS.

MEDICINE.

ALBION WALTER HEWLETT, B. S., M. D.

PROFESSOR OF MEDICINE IN THE UNIVERSITY OF MICHIGAN.

DAVID MURRAY COWIE, M. D.

CLINICAL PROFESSOR OF PEDIATRICS IN THE UNIVERSITY OF MICHIGAN.

CIRCULATORY CHANGES IN AORTIC INSUFFICIENCY.

MACCALLUM (*Bulletin of the Johns Hopkins Hospital*, 1911, Volume XXII, Number CXC VII) has studied the circulatory changes produced by experimental aortic insufficiency. He estimated the amount of blood propelled from the left ventricle by means of a cardiac plethysmograph. The descending aorta was cut and defibrinated blood allowed to flow through a rubber tube to a cistern, from which the blood was returned to the distal end of the cut aorta for circulation in the body. By this means the pressure against which the ventricle worked could be varied at will and pulse tracing could be obtained from the aorta near the heart. The volume of blood leaving the aorta and that pumped out by the ventricle could also be compared. He found that the tearing of an aortic valve caused the heart to perform a greatly increased amount of work, part of which was devoted to the maintenance of a nearly normal rate of blood flow in the vessels while the remainder was expended in forcing out of the ventricle a quantity of blood which regurgitated each time through the torn valve. A greatly increased pulse pressure was produced owing to the extensive and violent ventricular systole and to the effect of regurgitation. The low diastolic pressure allows a large systolic fling which causes the dicrotic notch to occupy a low position thus giving the collapsing quality to the pulse tracing. A. W. H.

SURGERY.

FRANK BANGHART WALKER, PH. B., M. D.

PROFESSOR OF OPERATIVE SURGERY AND CLINICAL SURGERY IN THE DETROIT COLLEGE OF MEDICINE.

CYRENUS GARRITT DARLING, M. D.

CLINICAL PROFESSOR OF SURGERY IN THE UNIVERSITY OF MICHIGAN.

DISEASES OF THE CHEST.

THE *Boston Medical and Surgical Journal* for September 14, 1911, contains a few short papers on diseases of the chest, which are up to date and worthy of consideration.

"Thoracic Surgery," by Doctor James G. Mumford, of Boston, is the title of a paper which was read at a meeting of the surgical section of the Suffolk District Medical Society and is intended to interest the general

practitioners, many of whom still believe that thoracic diseases, with the exception of pleural effusion and empyema, are to be treated by palliative measures. Some who know of the value of surgical treatment hesitate because they do not have a differential pressure apparatus and the technic supposed to go with it. While all of this is valuable, it is not strictly necessary to the general surgeon, and the following lesions may well come within his field: Foreign bodies in the bronchi, bronchiectasis, empyema, injuries associated with hemothorax, tuberculosis, pulmonary abscess, pulmonary gangrene, echinococcus cysts, actinomycosis, tumors of the chest wall or pleura, and damage to the lining itself. A few years ago, the death rate in attempting to remove foreign bodies by bronchotomy from the bronchi was one hundred per cent. The development of proper instruments and the x-ray have secured many brilliant successes without cutting. Empyema is still a much neglected disease and should be attacked in the acute stage. The most common form is that following pneumonia. The fluid or pus should be removed as early as possible and permanent drainage established by removing a bit of rib so that a good sized drainage tube may be inserted. Cases that are allowed to become chronic require many operations, usually requiring resections of the chest wall. A keen surgical judgment is necessary to produce a cure. Injuries, such as stab and gunshot wounds, require prompt and active aid. In serious hemorrhage, the thorax should be opened and the bleeding stopped by packing or by ligature, under differential pressure, if possible. Excision of a portion of the lung for tuberculosis has not proved a success, but the injection of nitrogen into the pleural cavity, as advocated by Murphy, may be of value.

* * *

Doctor T. B. Lund, of Boston, at the same meeting, presented a paper on the treatment of empyema. The treatment consists of incision, evacuation of pus and providing for free drainage. Early incision is recommended before the patient becomes weakened by the disease, also before strong adhesions have fastened the lung to the chest wall to prevent proper expansion. We should drain from the most dependent part of the cavity, the ninth or tenth interspace—well back. To prevent collapse of the drainage tube a portion of the rib should be removed. There is greater danger from the anesthetic. In extreme cases local anesthesia should be produced. Chloroform should not be given. Mark the lower angle of the scapula on the skin, then elevate the arm and incise on the rib at this point. The rib section is removed large enough to admit two fingers. Pus must not escape too rapidly or it will produce shock. The position of the lungs should be ascertained by the fingers and all adhesions should be broken up as far as the finger can reach. Insert a large tube and close the wound with the fewest stitches possible. As complications following, there may be abscesses in the abdominal wall, which should be opened. The drainage tube should be just long enough to enter the cavity. It should always be fixed to the skin. Never use a cigarette drain in these cases as it acts as a plug to

retain the pus. The use of the blow bottle is begun early to cause expansion of the lung. The drainage tube should not be removed until the temperature has been normal for a week or ten days, until the lung can be felt and the discharge is reduced to such an amount as might with reason come from the sinus. Irrigation should be employed only in exceptional cases. He has tried various forms of suction, but cannot advise others to use them. In old cases the size of the cavity may be determined by the probe and the x-ray plates. The adhesions between the lung and chest wall must be supported so that the lung may expand and fill the cavity. Decortication of the lung, by means of the finger, is recommended in all cases where the disease does not improve and the condition has not lasted more than one year.

* * *

Doctor Samuel Robinson, of Boston, presented a paper on "Bronchiectasis and Abscess of the Lung." He considers these together because practitioners not infrequently fail to differentiate the two conditions. This may lead to misapplied treatment. A bronchiectatic cavity should almost never be drained, as a fistula may persist and renewed secondary infection occur. The surgery of bronchiectasis has two possibilities: Immobilization of the lung or resection, both of which are useless when both lungs are involved. To immobilize, in a conservative way, introduce nitrogen into the pleural cavity. The radical method consists in an extensive resection of ribs over the affected part. The pleuropneumolysis method of Friedrick was employed in three cases with unfavorable results. Complete resection of the diseased lobe is the best theoretically. This may be done in one or two stages. There are at present five cases of complete recovery, following the removal of the lobe of a lung. "In acute abscess of the lung, the internist should transfer the responsibility of the case to the surgeon," even when he is unable to locate the abscess. This is due to improved surgical methods of exploration.

* * *

Doctor H. T. Murphy, of Boston, writes about penetrating wounds of the chest. In crushing wounds of the chest, meet the most pressing emergency with the least shock. Stab and gunshot wounds present four important points worth emphasizing: Abdominal pain, even though the peritoneum is not injured; possible serious hemorrhage from a wound of the intercostal artery; the great power of accommodation of the lungs to hemorrhage or pneumothorax, if the change comes on slowly; relatively slight danger of fatal hemorrhage, cause of the collapse of the lung, and the adherence of the pleura. The first down grade is shock; interference at this time would be fatal. When the return tide has set in, exploration may be useful. "I cannot but feel, though, that as a routine, rest, morphia and the swathe will give us a lower mortality than any thing like routine operative treatment."

C. G. D.

GYNECOLOGY.

REUBEN PETERSON, A. B., M. D.

PROFESSOR OF OBSTETRICS AND GYNECOLOGY IN THE UNIVERSITY OF MICHIGAN.

BENJAMIN ROBINSON SCHENCK, A. B., M. D.

CONSULTING OBSTETRICIAN TO THE WOMAN'S HOSPITAL OF DETROIT.

THE END RESULTS WHEN HYSTERECTOMY HAS BEEN
DONE AND AN OVARY LEFT.

POLAK (*Surgery, Gynecology and Obstetrics*, July, 1911) contributes a paper on this subject based on his personal experience.

The two classes of cases to which conservatism is generally applied are pelvic inflammations and myomata. In the former class the great mass of clinical evidence, contributed by Dudley, Clark, Norris, Peterson, Hyde, Robb and the author, show that the results of salpingostomy, and other plastic work on the tubes are unsatisfactory; that pelvic inflammation should be subjected to a long period of preoperative treatment before any operation is attempted (except the drainage of pus collections through the vagina); that, whenever possible, healthy ovarian tissue should be preserved, provided it can be done without interference with the ovarian blood supply by misplaced ligatures and sutures.

To throw further light on the above points Polak compared the end results of one hundred and thirty-two abdominal hysterectomies in which one, both or a part of one ovary was left with the results in a like number of cases subjected to hysterectomy and double salpingo-oöphorectomy. In making the comparison the following points were observed: (1) The general health after the operation; (2) the severity and duration of the nervous symptoms; (3) amount of pelvic pain or freedom from pain following conservation as compared with the comfort of the patient after complete extirpation; (4) the condition of the ovary or part of the ovary retained at the time of the final examination.

The author's technic comprises a low amputation, removal of all of the cervical epithelium, the fixation of the infundibulopelvic and round ligaments into the cervical stump, the raising of the conserved ovary by suture to the posterior surface of the round ligament, and the suture of the peritoneum over the stump.

It was observed that the severity of the nervous symptoms was less, subsequent to the operation and the general health of the patient better when hysterectomy had been done for pus conditions in the pelvis, than when the uterus had been removed for myomata. Also, that the myoma patients who prior to the operation had a low blood count had a less stormy convalescence than those who were in robust health at the time of the operation.

In ninety-six cases of fibroids, both ovaries were removed in forty-eight,

and a portion of an ovary, one or both ovaries, retained in an equal number. Of the first class, forty-three of the forty-eight patients were free from all pelvic pain or symptoms referable to the pelvis, except eleven who were relieved of lumbosacral backache by proper corseting. Thirty-two of the second group of forty-eight patients had been followed and five found who complained of pain at the site of the retained ovary. One patient in the complete class and three in the incomplete had pronounced nervous symptoms, all of the four being over fifty years of age. The author's experience seems, therefore, at variance with that of Clark and Norris.

In thirty-one women radical operation was done for pelvic inflammatory disease. In only one case was an ovary conserved. All were under forty years of age and thirty-eight were in perfect health.

From a study of these cases, Polak concludes:—

(1) That the technic of the operation and the general health of the patient have much to do with the end results.

(2) That a conserved ovary, if unhealthy, will leave the patient in a worse state mentally, nervously, and physically, than if a total extirpation had been done.

(3) That when the woman is at the age at which the menopause should occur, or when she is past the menopause, a total ablation gives the best results.

(4) That the nervous phenomena are more marked when the patient is operated when in comparatively good health, with a high preoperative blood pressure, than when the blood picture shows anemia or toxemia.

(5) That the symptoms of the operative menopause are less after extirpation for pelvic inflammation than when the ablation is done for fibromyomata. This is probably due to the associated vessel changes which we find in fibrosis.

(6) When one or both healthy ovaries can be conserved it should be done; the younger the patient the more necessary the conservation.

B. R. S.

OPHTHALMOLOGY.

WALTER ROBERT PARKER, B. S., M. D.

PROFESSOR OF OPHTHALMOLOGY IN THE UNIVERSITY OF MICHIGAN.

GEORGE SLOCUM, M. D.

DEMONSTRATOR OF OPHTHALMOLOGY IN THE UNIVERSITY OF MICHIGAN.

THE RELATION OF CEREBRAL DECOMPRESSION TO THE RELIEF OF THE OCULAR MANIFESTATIONS OF INCREASED INTRACRANIAL TENSION.

DESCHWEINITZ (*Annals of Ophthalmology*, April, 1911) prefers to retain the term choked disc because the differentiation between papilledema and inflammatory neuritis is not at present justifiable and is still in dispute. Intracranial pressure is the one cause which is certain and release of the pressure cures the choked nerve head.

Decompression has been utilized, first, for tumors of the brain; second, other types of brain disease and meningitis; third, injuries of the skull; fourth, syphilis of cranial contents; fifth, renal disease and anemia.

The author's personal experience represents an investigation of seventy-five operations in the service, chiefly of Doctors Frazier, Mills, Spiller, Keen, Taylor, Davis and a few others. His conclusions are also based upon a study of the American literature of the subject which was reported to the Ophthalmic Section of the American Medical Association, June, 1909, by the author in conjunction with Doctor Holloway. As a result of the studies of two hundred and twelve operations upon the brain preservation of vision is reported in seventy-six and five-tenths per cent of the cases, while in twenty-three and five-tenths vision was not preserved.

The process may be divided into five stages. In the first two, vision

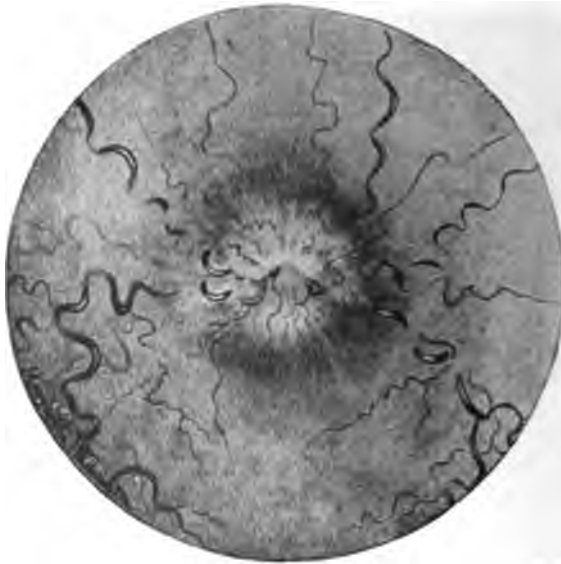


FIGURE A.—Fundus of the right eye of a patient with tumor of the brain and choked disc; swelling six diopters. (Service of Doctor Edward Martin in University Hospital.)

is perfect or still good, in the third stage vision declines, in the fourth and fifth stages vision is poor or lost. The best results are obtained when the operation is done in the early stages, especially when removal of the growth is possible either then, or at a later operation. Choked disc is present in about eighty per cent of brain tumors, but it does not usually appear early; the rapidity of the development of the swelling is variable and neither the amount nor rapidity of its development gives any index as to the duration of the intracranial lesion. During the period before the choked disc becomes manifest there is a stage in which the retinal veins become engorged, tortuous and darker in color. Cushing and Bordley maintain that there are also frequently present significant alterations of the

color fields in this stage which are often regarded as hysteric or due to a psychoneurosis. This occurs with such frequency in other conditions that dyschromatopsia cannot be relied upon as diagnostic. The brain tumor observations of Cushing and Bordley are not entirely new, for the author, Doctor Charles K. Mills and others, have noticed that visual fields resembling those seen in hysteria have been found not only in brain tumor but in lesions of the posterior portion of the internal capsule, *tabes dorsalis*, Friedreich's ataxia and in certain toxemias, but no one has studied this subject as scientifically as Cushing and Bordley, even if they have assumed a position which all are not as yet willing to take.

The accompanying charts of a case of Doctor Frazier's made before and after operation show the character of the reversal and interweaving



FIGURE B.—Fundus of the right eye of the same patient shown in Figure A one month after decompressing trephining

of the color fields often seen in cases of brain tumor, and their restoration after operation. However, the author would not depend upon this sign alone in recommending decompression because it is so frequently seen in cases other than brain tumor. It is important, the author thinks, to study the blind spot. Enlargement is seen in sympathetic ophthalmia, in optic neuritis, in retrobulbar neuritis due to sinus disease even before the neuritis is conspicuous, and this enlargement, if it is found to be present, might help in suspecting approaching choked disc. Repeated temporary amaurosis may be considered as one of the indications of increased pressure, and cerebral decompression should be considered if other symptoms of pressure exist even in the absence of choked disc, because the chances of saving vision are much better from early operation.

In the *British Medical Journal*, December 10, 1910, Sir Victor Horsadvises exploratory operation in every case of localized epileptic convulsions or progressive motor or sensory paralysis from intracranial lesions.

In the advanced cases of choked disc there may still be some hope of

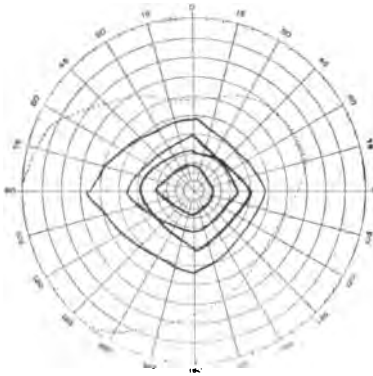


FIGURE C.—Left Eye.

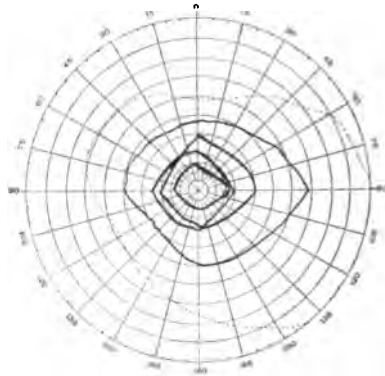


FIGURE D.—Right Eye.

Visual fields, before operation, of patient in service of Doctors C. H. Frazier and W. G. Spiller in the University Hospital, with symptoms of cerebello-pontile angle tumor and with hydrocephalus. Contraction of form fields and partial reversal of color lines. Double choked discs.

preserving vision. If the process is advanced, the vision very poor, and the fields very much contracted, vision is seldom saved, and in a few cases operation seems to hasten the blindness. However, the operation may even in these cases be indicated for the relief of other distressing symptoms.

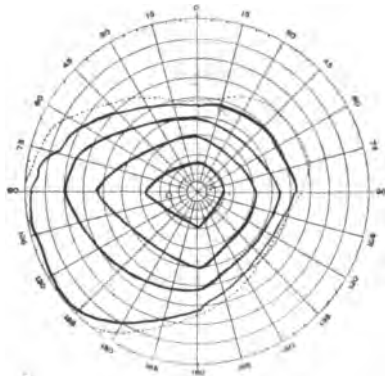


FIGURE E.—Left Eye.

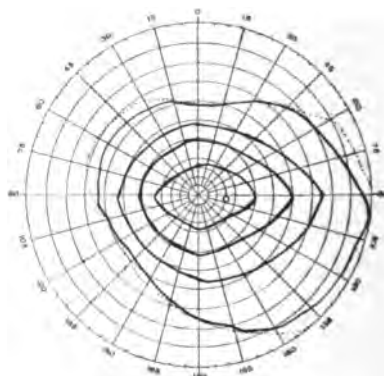


FIGURE F.—Right Eye.

Visual fields of same patient seven months after subtentorial decompression. All symptoms had disappeared, and visual fields are practically normal.

In injuries to the head trephining is often indicated, but cases frequently recover without operation even where papilledema is marked; nevertheless when papilledema develops one of the indications for trephining exists.

The author calls attention to pseudopapillitis and points out the neces-

sity for its differentiation. He deprecates the administration of remedies in brain tumor but believes in such delay as may be necessary for a thorough examination. Measurements of choked disc are valueless unless the static refraction is considered. In syphilis of the brain with positive Wassermann, medical treatment should be thoroughly tried for six or eight weeks, when if the choking and impairment of vision are unimproved, decompression should be considered.

The author does not believe decompression will be of much value in albuminuric papilledema nor should it be tried in those cases of papilledema sometimes seen in anemia, at least not until iron and arsenic have been tried.

The author concludes that the most satisfactory treatment for the purpose of saving the vision in any case of choked disc not due to a toxic process or constitutional disease (infectious optic neuritis) but depending upon increased intracranial tension, is cerebral decompression with removal then or later if possible; that it is not necessary to wait for the appearance of choked disc if the other symptoms and the general neurologic examination indicates the presence of a lesion that is causing increased tension; that in nonsyphilitic cases time devoted to the administration of iodides and mercurials is wasted; that the best results as to vision are obtained by early decompression, that is, in the first and second stage when the field of vision and visual acuity are not much impaired. The indications for operation in addition to the papilledema depend upon change in the visual fields, the size of the blind spot, the transient or continuous impairment of vision, including in the examination any necessary refraction to obtain the actual visual acuity.

All head injuries should be carefully investigated with the ophthalmoscope, but while operation may be indicated when papilledema is present it is not necessarily imperative, as in these cases recovery may be complete without operation. While the prognosis as to sight is extremely unfavorable in late cases, decompression may be necessary for other reasons. In the latter case, the unfavorable prognosis as to vision should be made plain to the patient.

In all pretentorial tumors temporal decompression is to be preferred, while in subtentorial tumors, subtentorial decompression is indicated.

G. S.

EDITORIAL COMMENT.

MICHIGAN PUBLIC HEALTH DEPARTMENTS.

It is gratifying to see the signs of increased activity in the various public health boards of Michigan. The new Secretary of the State Board of Health, Doctor Robert L. Dixon, begins service well equipped for his work as far as his professional training is concerned. For two years he was chief assistant to Doctor Aldred S. Warthin, professor of pathology and director of the pathological laboratory at the University of Michigan,

in which position he had excellent opportunities to perfect himself in the practical details of bacteriology and pathology, knowledge so highly essential to the executive of a state board of health. That his professional acquirements are joined to what bids fair to be high executive ability is shown by his course since he entered upon his new duties. He has grasped at once one of the fundamental guiding principles of a state board of health, publicity in public health matters—publicity in the best sense of the word, a thorough dissemination among the laity of all matters making for the betterment of the health of the people of the state. The public certainly needs to be educated in matters relating to hygiene and health and such an education can only be carried on through the public press where the people will read and ponder. In the past this duty of the public health officer has been too often neglected, and too much reliance placed upon bulletins and circulars directed to the medical profession. While it is important that doctors be kept informed about and educated in public health matters, this should not be pursued to the neglect of other methods for disseminating knowledge of public health matters.

In addition to the publicity campaign, Doctors Dixon and Warthin have visited Northern Michigan for the purpose of investigating certain diseases such as poliomyelitis, leprosy and pellagra, known to be prevalent in certain parts of the upper peninsula. It is confidently expected that their report will not only be of great scientific value but will accrue greatly to the advantage of the citizens of the state.

Another public health board deserving of more than passing notice, is that presided over by Doctor Guy L. Kiefer of Detroit. Doctor Kiefer, through his work in connection with the Detroit Board of Health, has acquired a national reputation, just as is the case with Doctor W. A. Evans, ex-commissioner of the Chicago Board of Health. These gentlemen were each the recipient of the new degree established at the University of Michigan last commencement, D. P. H., Doctor of Public Health. In his last bulletin, Doctor Kiefer announces a new departure in public health work as follows: "The State Fair opens September 18th, and continues to September 27th. During that time the Milk Department of the Board of Health will have an exhibit on the grounds in the new Dairy Building. The exhibit consists of an inexpensive sanitary milk house, the object being to show producers how to care for the milk from the time it has been drawn until it is delivered. Adjoining the milk house will be a model dairy stable showing the proper kind of floors to be used and also the latest improved stanchions. It is the intention of the Board of Health to give each dairyman who sells milk to Detroit, and who visits the exhibit, a set of plans of the milk house in order to aid him in having one constructed upon his own premises."

This seems to us a most excellent idea and one which can hardly help being productive of good results. Many people will do certain things which they know to be advantageous to themselves and others if they can be shown how. They lack the initiative to start the work but will follow along the path laid out by others. That more can be accomplished

by appealing to sight rather than to hearing is shown by the methods adopted in the antituberculosis campaign, the war on flies, et cetera. Only recently the German government expended over a million dollars for an exhibition of all things pertaining to hygiene and public health. It is only fair to suppose that Germany will more than be repaid by this Dresden Exhibition through the proper education of her people. It does not take many lives saved through prophylaxis to equal this sum, to say nothing of the saving in morbidity accomplished through the same means.

CONTEMPORARY.

A "FREUDIAN" NOVEL.

[INTERSTATE MEDICAL JOURNAL.]

A STUDENT of modern medicine, who is interested in the interplay of medical theories and the trend of literature, cannot but be struck with the truism that certain forms of literature—plays and novels, especially—derive their inspirations and impulses, in quite a goodly number of cases, from the theories which are uppermost in the medical mind. The literary brain, it would seem, ever on the lookout for new ideas, takes kindly to the appropriation of current medical thought, and while in some instances the appropriation is attended by a sensationalism that spells distortion of the real facts, in others the resultant performance is far from being mean. Illustrations of this assertion are to be found in Zola's "L'Assommoir" and Ibsen's "Ghosts," to cite two works of unusual merit, though these by no means exhaust the list of the literary photographs which contain, in a striking manner, medical verisimilitudes that might with profit engage the earnest thought even of the closest students of medical textbooks. We say "with profit," for can it be asserted, with any show of reason, that when the picture is limned by a master there are no advantages in a presentation that is no longer the dry-as-dust syndrome, unasociated with temperament, idiosyncrasies, and environment?

If, therefore, it is right and proper, from our point of view, to transfer medical facts to plays and novels, provided the crucible through which such facts pass is a dependable instrument, our attitude is nevertheless stubbornly nonacceptant, if the unproved theories of a medical author are set forth in such manner that the art of the novelist glozes over their inherent weaknesses so that the uninitiated are led to believe the principal character depicted one of a type. A case in point is the novel "Das Gefährliche Alter" (The Dangerous Age), as it is called in German, by the Danish writer, Madame Kærin Michaëlis, and which, on account of the Freudian sexual theory of hysteria that it embodies in its heroine, Elsie Lindtner, and a number of her intimate friends, has been seized upon by the critics and thousands of readers in Germany as a type of womanhood that is prevalent enough to arrest attention.

We would not pause over this literary expression, for any length of time, were it not that here is no tried medical fact brought to light in

fiction, but a theory that has been disputed by such men as Alt, Aschaffenburg, Foerster, Moll, Friedlaender, Kraepelin, Heilbronner and others. As a theory it might stand for much in medical literature, but outside its appointed province, especially when it is garnished with considerable literary grace, it can be productive of nothing else but great harm; a statement which is not an exaggeration, since already the majority of the recognized critics in Germany are loud in their praise of a writer who has the courage to tell the truth about women. And here it would be well to draw the attention of the reader to the vast difference between medical facts and theories, when these are exploited in the literature of the day. A fact is applicable only to a limited number of persons, no matter how desirous the critic or intelligent reader may be to make its applicability universal; whereas a theory, on account of its elasticity, is so adaptable to all, that at once it is made to fit every case that shows the slightest deviation from what the superficiality and narrowmindedness of both critic and reader considers normal. This was well shown when Lombroso gave his ideas on degeneration to the world, and if we mistake not the same farce is about to be repeated in connection with the Freudian sexual theory of hysteria.

MEDICAL NEWS.

A COMPLIMENTARY BANQUET TO DOCTOR CARSTENS.

ON Tuesday evening, September 26, 1911, a complimentary banquet was tendered Doctor John Henry Carstens, of Detroit, by his colleagues of the Wayne County Medical Society. About two hundred partook of the repast, which was served at the Hotel Cadillac, in Detroit, and the good wishes of the banqueters toward their guest is shown by the following list of toasts:

TOASTMASTERS:

HENRY O. WALKER. CHARLES G. JENNINGS. EUGENE SMITH.

"WE ALL OF US, SAY BUT LITTLE."

—H. O. W.

- (1) JOHN HENRY CARSTENS, Student, Practitioner, Surgeon

Theodore A. McGraw, Detroit.

"The lot assigned to every man is suited to him, and suits him to itself."

—*Marcus Aurelius*

- (2) JOHN HENRY CARSTENS, His Services to the Profession of the State of Michigan.

Colonel B. Burr, Flint.

"How much time he gains who does not look to see what his neighbour says or does or thinks, but only at what he does himself, to make it just and holy."

—*Marcus Aurelius.*

- (3) JOHN HENRY CARSTENS, Hospital Chief, Citizen.

Joseph L. Hudson, D. G. C. (Doctor of Good Citizenship), Detroit.

"Whatever is in any way good or beautiful hath its source of goodness and beauty in itself, and is complete in itself; praise forms no part of it. So it is none the worse nor the better for being praised."

—*Marcus Aurelius.*

- (4) JOHN HENRY CARSTENS, Friend, Colleague.

Ernest L. Shurly, Detroit.

"Friendship! mysterious cement of the soul!
Sweet'ner of life! and soldier of society!"

—Robert Blair.

- (5) JOHN HENRY CARSTENS, Specialties.

Walter Hume Sawyer, Hillsdale.

"A wise man is strong; yes, a man of knowledge increaseth strength."

Proverbs, XXIV, 5.

- (6) JOHN HENRY CARSTENS, Our Guest.

By Himself.

"Of right and wrong he taught
Truths as refined as ever Athens heard;
And (strange to tell!) he practised what he preached."

—John Armstrong.

THE PASSING OF FRANK PIERCE FOSTER.

THE subject of this sketch and the frontispiece in this issue was born in Concord, New Hampshire, November 26, 1841, and died in Chadwick, New Jersey, August 13, 1911. Doctor Foster was descended from old New England stock, his mother being a niece of Daniel Webster. He received a thorough education in the public schools of his native town, Latin and Greek being included in the curriculum. His medical career had its inception when, at the age of fifteen, he entered the office of Doctor Lyman Gage, a physician of more than local celebrity. Here he studied anatomy, physiology, and botany, dabbled somewhat in the preparation of chemical compounds and otherwise gained a knowledge of the mysteries of medicine which enhanced his standing when he matriculated at the Harvard Medical School in 1859. He shifted his course from Boston to New York, however, where he obtained the degree of Doctor of Medicine at the College of Physicians and Surgeons in 1862. The scene of his first postgraduate activity was the New York Hospital, in which he served as interne for two years. Later he became ship surgeon on the *Sacramento*, a Pacific Mail steamer, which ran through the Straits of Magellan to San Francisco. In 1864 he returned via Panama, and became contract surgeon in the United States Army, which position he held until the termination of hostilities, being stationed in Annapolis and Baltimore. In 1865 he engaged in general practice in New York City, but later elected the specialty of dermatology, and while engaged in this field he assisted in founding the Dermatological Society, of which he afterward became an honorary member. Doctor Foster likewise practiced obstetrics and gynecology, and an ingenious method of extracting the fetus after transverse presentation now bears his name. Under the auspices of the New York Dispensary he introduced the manufacture of cow vaccine into America in 1870. Three years later, upon his return from London, he was offered the chair of obstetrics at Yale University, which he declined. He assumed the editorship of the *New York Medical Journal* January 1, 1880, and died in the harness, thus occupying the tripod thirty-one years. In the early eighties Doctor Foster became editor of the well known "Foster's Encyclopedic Medical Dictionary," in four

volumes. Twelve years were devoted to preparing and publishing this work, and its translation into seven languages shows the reception accorded it. He was also editor of a "Reference Handbook of Practical Therapeutics," in two volumes; a member of the editorial staff of the "Standard Dictionary," and a contributor to the chapter on Virchow to Lord's "Beacon Lights of History." Doctor Foster was chairman of the commission to revise the medical nomenclature—a task undertaken by the American Medical Association—and wrote the reports on this work which were presented in 1909, 1910, and 1911. His activities were varied and untiring and his personality will be sadly missed from the domain of medicine.

RECENT PUBLICATIONS.

REVIEWS.

ONE HUNDRED SURGICAL PROBLEMS.*

IN this volume are reported one hundred surgical cases, all of which illustrate and emphasize certain problems of surgical interest. The cases reported are not unusual in most respects, but represent actual cases most of which are typical of the condition they illustrate. The author emphasizes the idea that in teaching surgical diagnosis we should have patients as the basis of our teaching.

The case histories and the findings at examination are tersely recorded. In the body of the case record are many references which refer one to explanations and discussions at the end of the record. The patient is presented as he appears to the surgeon and the record is sifted down and the important points differentiated from the unimportant. In each case the diagnosis made is given with the reason for such diagnosis. The findings at operation are then described and their relation to the symptoms discussed. The reason for mistaken diagnoses is pointed out in some cases. The end results of treatment adopted are also given, and the reason for certain failures also pointed out.

The value of such clinical studies is very apparent. It is different from ordinary texts in that actual patients are presented, with symptoms which, although fairly typical, must be sifted out, and the important ones recognized. The volume makes an interesting "clinic" for the practitioner who cannot regularly visit hospitals for direct observation of surgical cases. One can heartily recommend such a book to any medical man, and it is bound to interest almost everybody. The book is written by an authority and the deductions made can be accepted as representing the best surgical judgment. The price of the volume places it within reach of all.

*By James G. Mumford, M. D., Visiting Surgeon to the Massachusetts General Hospital; Instructor in Surgery in the Harvard Medical School; Fellow of the American Surgical Association, et cetera. Octavo, 354 pages. Price, \$3.00. W. M. Leonard, Publisher, Boston, 1911.

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NUMBER XI.

ORIGINAL ARTICLES.

MEMOIRS.

INFANT FEEDING.*

COLLINS H. JOHNSTON, B. A., M. D.

PHYSICIAN TO BUTTERWORTH AND UNION BENEVOLENT ASSOCIATION HOSPITALS AND THE D. A. BLODGETT HOME FOR CHILDREN.

GRAND RAPIDS, MICHIGAN.

THERE are three important indications by which we judge of the progress of an infant, first, the weight; second, the temperature; and third, the stools.

For the first six months of life an infant should gain six hundred grams per month, and five hundred grams per month the next six. Much more important, however, than the total gain in weight is the character of the weight curve which should be regular and continuous. A hesitating, irregular gain is pathologic, even though the total gain may be the normal amount, and always indicates some abnormality which requires investigation. When an infant is taken from the breast and put upon cow's milk, it usually makes a sudden marked gain in weight due to the fact that cow's milk contains seven grams of sodium chloride to the liter, while mother's milk has but two, the increase in weight being due to retention of water in the tissues. Conversely when mother's milk is substituted for cow's milk, a consequent loss in weight is the rule. Alterations in weight from this cause must not be forgotten or incorrect conclusions may be drawn.

The second important guide to the condition of a baby is its temperature. The normal temperature of an infant is variously stated by different writers. I formerly believed that anything from 97° to 100° was a normal rectal temperature for an infant. Further observation, however, has led me to conclude that this is true only of bottle-fed babies and that 98.2° to 99° should be considered as the normal rectal temperature of a breast-fed baby.

*Read before the Grand Rapids Academy of Medicine, October 4, 1911.

The third important factor are the stools. The number and character of stools in the first year of life vary widely. While some infants may have from two to four stools a day during the first month or two of life, of an orange-yellow color and uniform consistence, other babies may have eight or ten or more watery, lumpy, green stools which at any other age of life would be considered pathologic. In spite of these fluid or semifluid, atypical stools which are so common at this period, many infants continue to make satisfactory progress. In the first weeks of life such stools may be considered almost normal. Considerable variations in color and consistency of the stools are not incompatible with regular gain in weight at this period, and if the weight curve shows a steady, regular gain, no infant should be taken from the breast on this account. It makes no difference whether a baby in the first months of life has two or ten stools a day, providing the infant looks well and is gaining in weight. The condition is not due to any abnormality on the part of the mother or her milk, but to an unadaptability of the food to the infant's intestinal epithelium, which sometimes requires several weeks for adjustment.

I saw an infant in Hamburger's clinic in Vienna which in the first six weeks of life had five wet nurses, and it was not until the fifth nurse was reached that the stools became normal. Hamburger emphasized the fact that whichever nurse had happened to be fifth, the dyspepsia would have been relieved just the same.

Constipation in nursing infants may be due to hunger or under-nourishment. When the stools are soft, even though there may be but one in two or three or four days, it is not necessary to administer laxatives. When the stools, however, are hard, it usually indicates some error in diet. If the babies are under five or six months of age, this can often be corrected by the administration of fifty grams of milk sugar in one hundred grams of water, divided into three portions, one of which is given three times a day before nursing. If the baby is over six months of age, it is better to begin the giving of other foods, such as oat jelly, prune juice, apple sauce or some other preparation of fruits or vegetables.

There is considerable difference of opinion in regard to the proper frequency of nursing. A majority, I believe, of our textbooks still teach that an infant should be nursed every two hours, or ten times during the twenty-four, for the first month or two of life. In recent years there has been a tendency to lengthen the interval, and I believe that five or six feedings during the twenty-four hours is enough. If a healthy baby is more frequently nursed it is apt to be overfed and the mother is more of a slave to her baby than is necessary. If the secretion of milk is deficient, both breasts may be given at a time. Finkelstein emphasizes the opinion that with rare exceptions every mother can nurse her child, if the technic is right; that is, that every mother's milk is suitable for her infant. If before the secretion is well established a bottle is given occasionally, congestion of the breast follows and the secretion is retarded. This, I believe, is the most common cause of a mother's inability to nurse her baby. It is in the first weeks of life, before the secretion is well established, that this mistake is made.

Finkelstein maintains that an infant will thrive on any nurse's milk, irrespective of the age of the milk or of the baby. Failure to thrive is usually due, not to some fault in the quality of the breast milk, but to some condition in the child itself. The percentage of the constituents of mother's milk varies very little with the exception of the fat which also varies much less than it is commonly supposed to do. In undernourished nurses it may become as low as two per cent, and at different periods of the same nursing it may vary considerably, being one per cent at first, four in the middle and six or seven per cent toward the end of the nursing. It is for this reason that examinations of maternal milk when an infant is not thriving are of but little value.

As general contraindications to nursing, Finkelstein recognizes only tuberculosis and advanced heart disease. Acute infectious diseases are not contraindications. He permits mothers to eat whatever and as much as they wish.

Constipation may be due to overnourishment as well as undernourishment, although the former is less common. Indigestion with dyspeptic stools may also be due to both of these causes. When a nursing baby fails to gain in weight, the only way to arrive at a determination as to the reason for it is to weight the baby before and after each nursing. This is always done with every nursing baby in Finkelstein's Hospital, as only in this way can he tell how much food his patients are receiving.

There is no constant symptom of underfeeding on the part of a baby. An insufficient supply of food is often indicated by evidences of hunger and a tendency to constipation. An underfed baby is often cross and irritable, although it may be quiet and uncomplaining. The abdomen is flat in comparison with that of an infant normally fed and at times may be below the level of the thorax. The evacuations are usually infrequent, small in quantity, dry and of a dark color. In advanced stages of undernutrition these symptoms are more pronounced and a marked state of inanition may develop. Week after week I have seen such an infant steadily decrease in weight without obvious signs of illness and have only been able to determine that the real cause of its loss in weight was due to insufficient nourishment by weighing it before and after each feeding.

When a nursing infant does not increase in weight, it should be put to both breasts for a few days. As there are some infants who are inclined to be indolent and not take enough food, if the loss in weight still continues, it is then well to put it to the breast six or seven times a day, never more than seven. If this does not suffice, the infant may be given small doses of pepsin and acid to improve its digestion and appetite and in this way induce it to take more food.

It has been found that when a baby does not thrive on breast milk as it should, it is often due to the fact that the milk contains too little proteid. In this case it is exceedingly useful to give a fat-free milk or, better, buttermilk once a day, occasionally twice, never oftener, as these babies gain much better on a mixed diet of three or four breast feedings and one or two of buttermilk. If possible it is well to wait until the end of the second or third month before beginning buttermilk, as young infants are often unable to take care of the large amount of salt in cow's undiluted milk.

When it has been found that the mother's milk is really deficient in amount, it is much better to permit the child to nurse and then supplement the feeding with cow's milk, properly prepared, than it is to feed breast and cow's milk alternately.

The gastrointestinal diseases of infants have been variously classified by different authorities; some from a bacteriologic, some from a symptomatic, and others from a pathologic standpoint. It is well known, however, that cases symptomatically similar may be very different pathologically, and conversely that the symptoms of pathologic changes in the stomach and intestines may be quite different. It has also been determined in recent years that bacteria play a much less important etiologic rôle than they were formerly supposed to do. The pendulum is now swinging from a bacteriologic origin of these conditions to a chemical one, and it is now believed that chemical changes in the gastric and intestinal contents are a most important factor in the gastrointestinal disturbances of infants.

Finkelstein believes that bacteria play a very subordinate rôle. He, therefore, classifies the alimentary disturbances of infants into:

- (1) Balance disturbances.
- (2) Dyspepsias.
- (3) Intoxications.
- (4) Decompositions.

I.—BALANCE DISTURBANCES.

There are many babies who do not thrive on a diet normal to their age, who are cross especially at night, and have restless, broken sleep. The stools in this condition are quite characteristic; instead of being soft, yellow and moist, they become pale, gray, hard and dry, of the color and consistency of putty. The appetite frequently becomes poor and part of the food is uneaten. The infant becomes pale, the tissues lose their tone, the muscles become flabby, the abdomen soft and distended with gas, the baby gains slowly in weight or not at all. If the food is still further increased, the child not only will not gain but may lose weight. There are no dyspeptic or diarrheal stools.

It has been definitely determined that this condition is due to the presence of too much fat in the infant's food and that many babies suffer from a congenital inability to digest a normal amount of fat. This symptom-complex does not usually appear until the third or fourth month or even later. Before concluding that an infant which is losing weight and which is upon a proper food mixture is the subject of a balance disturbance, such conditions as tuberculosis, colicystitis, et cetera, should be excluded. It sometimes becomes necessary to differentiate between it and malnutrition which can usually be done from the history, amount of food taken and temperature. In balance disturbances the amount of food taken is usually normal, sometimes above normal, while in inanition the amount of food taken is small and the temperature below normal. The prognosis in balance disturbances is good when it has been caused by too much fat in the food, but when the amount of food has been normal, showing a congenital intolerance of fat, the prognosis is not so hopeful. The indications are, of course, to reduce the amount of fat in the food. If over three months of age

Keller's malt soup is indicated which is rich in carbohydrates but poor in fat. It is made as follows: One-third of a quart of milk, two-thirds of a quart of water, fifty grams of wheat flour, and one hundred grams of malt extract. It thus contains one-third the amount of fat in cow's milk, the normal amount for new-born babies. It is, however, too high in sugar for infants under three months, but is well borne after that age, as it is only in the first two or three months of life that an excess of sugar is especially bad for infants.

Fortunately these balance disturbances are not common in the first three months. If, however, such a case presents itself, the amount of flour in the mixture should be reduced to twenty grams and the malt extract to sixty grams. If the case is a severe one it is better to give fat-free milk or preferably buttermilk to each liter of which forty grams of carbohydrates and ten grams of flour are added. It is better, however, not to give fat-free milk in the first or second month of life. It may be asked why not dilute the buttermilk or cow's milk in these early cases and thus get rid of the high percentage of fat. For five years Finkelstein treated his cases in this manner and found by sad experience that the younger infants did badly on such dilutions, for on account of the fact that large amounts of carbohydrates are also badly borne at this time, it is not possible to give the infants sufficient calories to maintain their nutrition. After keeping a baby on a fat-free milk for four to eight weeks, one should gradually resume its ordinary food mixture, substituting one bottle of its usual food for one of the buttermilk, then two, et cetera until the usual diet is resumed. If the trouble returns, the buttermilk may be resumed again for a short time. In the later months of life, if full milk does not agree with babies, it is frequently sufficient to add carbohydrate without reducing the fat at all. Finkelstein, however, never gives whole cow's milk until babies have reached the age of one year.

II.—DYSPEPSIA.

Dyspepsia is more common in the first two or three months of life than later and is always due to too much sugar in the infant's food. Its chief symptoms are moderate decrease in weight, slight temperature and dyspeptic or diarrheal stools. Such conditions in infants are very common. If, as frequently happens, a baby's appetite becomes poor and it evidences dislike for its food, a mother often adds sugar to induce the baby to take its food better and the trouble thereby is invariably made worse. The child vomits, becomes pale and weaker and the stools increase in number. The diagnosis of dyspepsia is made from the stools, loss in weight and slight elevation in temperature. The differentiation from balance disturbances is not difficult. The fat stools of balance disturbance are more or less hard and sausage-shaped. The stools in dyspepsia are thin, slimy, green and have many casein masses.

Dyspepsia is frequently secondary to infectious diseases such as bronchitis, tonsillitis, et cetera, or may be purely alimentary in origin and due either to an abnormal amount of sugar in the food or to a congenital intolerance of sugar. The treatment depends upon which of these conditions is present. The former may result in the development of the latter condition. One must remember at the outset that an

infant can be nourished a long time on a fat-free diet, but not on one free from sugar. It, therefore, frequently becomes necessary to begin the giving of sugar early or the child will lose too much weight.

Treatment is begun by the withdrawal of all food and the giving of tea or water for twelve or twenty-four hours without sugar. Saccharin may be added to induce the child to take the normal amount of fluid which is absolutely necessary to prevent too great loss in weight. After twelve hours, food may be resumed, giving one-third the amount in volume of its usual food without sugar and as much water as the child will take. In two or three days the stools are usually much better. Then gradually increase the food until the usual amount is given. Then gradually add carbohydrates until the child is back upon its usual diet at the end of eight days.

In case the dyspepsia is primary and comes on while the child is on its normal diet, the probabilities are that the dyspepsia is due to a congenital failure of metabolism and will sooner or later return when the usual food is resumed. The prognosis in these cases is much less favorable in the first or second month of life than later. In these cases where the trouble seems to be due to a congenital or acquired intolerance of sugar, a wet nurse should always be advised or the child be at once put upon Finkelstein's "eiweiss" milk.

Dyspepsia is very common in breast-fed babies in the first few weeks of life and at that time, if the child is gaining in weight, can be ignored. On account of the apparent disagreement of mother's milk with babies at this period I have frequently seen infants weaned altogether and put upon artificial food, very much to the regret of everyone concerned later.

Finkelstein frequently emphasizes the fact that the best food for infants, sick or well, is human milk. Of the two hundred eighty infants in his hospital, but twenty are breast fed. He stated to me that the death rate of artificially-fed babies in Berlin is seven times greater than those of breast-fed babies. I knew that the mortality in his hospital was very much less than this, having been reduced in the last five years from eighty per cent to seven or eight per cent by his peculiar method of feeding, and I asked him why he did not give all the babies breast milk. He stated the only reason was that it was not obtainable.

When a baby, which is thriving, contracts some infectious disease such as bronchitis, pharyngitis, otitis, et cetera, and secondary dyspepsia, which is not due to alimentary disturbance, sets in, it is not necessary to withhold food and put the baby upon tea or barley water as is usual in primary cases, especially if "eiweiss" milk is to be had. Where this is done and the diet is curtailed for a week or more, the infant regularly loses more or less weight, and if the process is repeated two or three times as is so apt to be the case, atrophy or malnutrition frequently results. I wish to emphasize this point, that with no other food which I have ever used is it possible in the presence of six or eight or ten stools a day to increase the strength of an infant's food from day to day until enough calories are taken and assimilated to enable the child not only to hold its own, but frequently to gain in weight. This is certainly a very great advantage. Very many times in years past, laboring under the impression that it was necessary to

withhold all but the very weakest food until the gastrointestinal condition had greatly improved, have I kept a baby upon broth, barley-water, rice-water, et cetera, a week or more, during which time it lost much in weight and strength. Then gradually its former food was resumed and sometimes it would be a week or two before it was back upon its usual diet. Frequently it is almost impossible for a considerable period to resume the strength of food the baby was taking before the attack. If finally we are able to do this, before long another attack may be precipitated. In this way I have seen a good many cases of atrophy and malnutrition brought on in infants whose lives were saved only by a wet nurse. It is in these conditions, it seems to me, that Finkelstein's "eiweiss" milk finds one of its most important indications and I wish to urge its use under these circumstances. These cases of dyspepsia are given undiluted "eiweiss" milk and seldom more than five times a day.

When a child contracts dyspepsia and fever at the same time, it is very important to determine whether the dyspepsia is secondary to an acute infection which is just beginning, in which case no change should be made in the food, or whether it is a primary one. If the infant is already on breast milk or "eiweiss" milk, when primary dyspepsia is infrequent, the chances are in favor of the condition being a secondary one. In such cases we should proceed slowly and not take the child from the breast or "eiweiss" milk until we are sure that the trouble is really an alimentary one and not the result of some acute general infectious disease.

These dyspeptic conditions are due directly to fermentation of the sugar and indirectly to the salt in the cow's milk; so buttermilk or malt soup should not be given. These are indicated only in balance disturbances which are due to too much fat and too little sugar. They are used when we wish to give less fat and more sugar to the infant, so they must not be used when we have a condition caused by too much sugar as in dyspepsia.

In the treatment of dyspepsia three per cent of carbohydrates is usually added to the "eiweiss" milk. In severe cases this may be omitted altogether for a few days. "Eiweiss" milk should not be given longer than six or eight or ten weeks, or until the child has gained a kilogram in weight (2.2 pounds), as light cases of Barlow's disease have occasionally followed its use for a prolonged period.

III.—INTOXICATIONS.

By intoxication, which is equivalent to our term cholera infantum or enterocolitis, Finkelstein refers to a condition characterized by somnolence, light, toxic (rapid, deep) breathing, pale gray skin, profuse liquid stools, dryness of the skin, fever, vomiting, more or less general bronchitis as indicated by the râles here and there in the chest, albumin, casts and sugar in the urine, loss in weight, oftentimes collapse, and a leukocytosis of from fifteen to twenty thousand. There may be light cases with slight fever and few toxic symptoms and but little loss in weight. The child lies quiet most of the time; there are many more casts and much more albumin in the urine than in nephritis. The fontanels are sunken.

Most of the severe, sudden bowel troubles in the summer are cases of intoxication. There may be severe convulsions and the case may resemble meningitis. The fontanels, however, are tense in meningitis and sunken in intoxication. There are severe cases of dyspepsia which are hard to diagnose from intoxication. The three most important symptoms of the latter are the toxic breathing, somnolence and glycosuria.

It was formerly thought that pathogenic bacteria were the etiologic factor in these cases of ileocolitis, because they are most common in hot weather when bacteria grow more rapidly. Finkelstein, however, does not believe this to be the case. The summer death rate in Germany, where milk has been most carefully looked after for a good many years, has not been at all reduced.

Riechel, in Dresden, has raised the temperature of infants' wards to eighty-seven or eighty-eight degrees in the winter and continued feeding babies the same sterile food they were accustomed to and cases of cholera infantum have been produced in considerable numbers. The fever in these cases does not necessarily mean sepsis, because the administration of a solution of sugar in sterile water will cause the fever and all other symptoms of intoxication. A solution of salt will also cause a temperature of 103° or 104°; so that the high fever present in intoxication does not necessarily indicate an invasion of bacteria.

There is no doubt but that the increased temperature of summer is a factor of some importance in these cases, as well as in dyspepsia; not, however, because the growth of bacteria in milk is favored, but because the capacity of the infant's digestion is lessened. On the other hand thirst is increased by the heat and sweating, and if the infant cries it is apt to get more milk than it should.

Finkelstein's practice is built upon the theory that the epithelium of the intestine is damaged by the comparatively large amount of sodium chloride in cow's milk which contains seven grams to the liter, while mother's milk contains but two. When the epithelium is thus injured the sugar and fat are not absorbed but ferment in the intestines and cause toxemia. I asked him why in severe cases of dyspepsia, which he maintains are due to too much sugar in the artificial food, he places babies upon breast milk in which the sugar content is high. His answer was that because of the low percentage of salt in mother's milk nature was able to repair the injury to the intestines caused by the cow's milk and the case recovers in spite of the high per cent of sugar in breast milk.

The treatment of intoxication is somewhat similar to that of dyspepsia. Nothing but water or tea should be given. If the baby is vomiting it is given cold. This is continued until the child is free from toxemia and the temperature down, the sugar, casts and albumin have disappeared from the urine, the somnolence has disappeared and the child is hungry. This usually takes place in twenty-four hours.

The best food to give then is breast milk, but in very small amounts, as five grams ten times in the twenty-four hours, then ten grams ten times in the twenty-four hours, then fifteen grams ten times, et

cetera. If breast milk cannot be obtained, "eiweiss" milk may be given in the same way, but on account of the low sugar content it may be increased in amount more rapidly than breast milk. At the end of a week one can usually add carbohydrates. If neither breast milk nor "eiweiss" milk can be obtained, diluted cow's milk may be used, beginning with one-third milk and two-thirds water. If the child needs stimulating, caffeine or camphor may be given.

For the hyperpyrexia cool baths or wet packs may be used, repeated as often as necessary. In all cases the child should be given all the water it wants. If it will not take water by the stomach, it should be given one hundred or one hundred fifty grams of Ringer's solution or Koch's salts solution per rectum or subcutaneously twice a day. For the cramps and pains chloral per rectum or veronal per mouth may be used. If the child vomits to excess, the meals should be small and frequently repeated, say twenty times a day, and also ice-cold. Once or twice a day the stomach may be washed out with a salt solution.

If the alimentary and toxic symptoms improve, but the fever stays up, it means a complicating infection such as for instance cystitis. If at the end of twenty-four hours on a tea or water diet the fever has dropped and the toxic symptoms have disappeared, a solution of salt or sugar or bouillon (which contains salt) is given, one can promptly bring back the fever and other symptoms of intoxication, showing that the disease is an alimentary disturbance caused by salt and sugar and not a bacterial one. It is due to an error of metabolism rather than to bacterial invasion. No alcohol is used in treating this disease unless decomposition has been present.

The theory of the injury to the intestinal epithelium by the salt in cow's milk and its consequent inability to digest and assimilate the sugar and fat has not yet been proven by pathologic findings. Finkelstein's assistant, Meyer, has performed an interesting experiment which seems to prove the point. He has separated the whey and solids of both cow's and mother's milk; then mixing the solids of the cow's milk and the whey of the mother's milk, he has fed it to babies and they have thrived. He has then given them a mixture of the solids of mother's milk and cow's whey which contains the salt and sugar and they have immediately lost in weight and done badly, showing that it was the whey of the cow's milk that produced the disturbance.

IV.—DECOMPOSITION.

There are two possibilities in a case of dyspepsia; first, the fever may increase, the loss of weight become greater, the fluid stools become more numerous and the case result in intoxication, or the child may lose weight more slowly, become pale and white (not gray as in intoxication), the pulse come down to eighty or ninety or a hundred, and the temperature go below normal. The child may be in a chronic state of hunger. Such a condition Finkelstein calls decomposition or atrophy, an end result of a case of dyspepsia. A second mode of origin is as a result of inanition. The child may have had dyspepsia and been badly treated. It may not be given food enough or may be given buttermilk. Several water and tea treatments may have been gone through with and the proper food not begun soon enough, or may

not have been well borne. The recurrent dyspepsia plus the inanition resulting from two or three water and tea treatments may result in this condition of chronic atrophy or decomposition. Too little food alone can lead to inanition and consequent decomposition.

When a case of decomposition presents itself one should determine whether it is a result of recurrent dyspepsia or secondary to other diseases such as tuberculosis, la grippe, or otitis. The chief symptoms are loss in weight, paleness, great red mouth, hunger always, abnormal temperature and slow pulse. It is always a chronic process.

These cases react badly to hunger, and if improper feeding leads to a complicating dyspepsia or intoxication, and a tea or water diet for some hours becomes necessary, sudden collapse is apt to follow and speedy death is likely to occur. Even small amounts of normal food may cause diarrhea. Atrophy may also result from tuberculosis or other diseases or disturbances of nutrition, but are usually a sequence to decomposition.

The treatment of decomposition is difficult. There are two great dangers present; that of hunger and its resulting collapse on one side, and food disturbances when the normal diet is resumed on the other side. Its management requires great judgment and considerable experience. It is hard to avoid both of these dangerous sequels. The best diet is mother's milk given as in intoxication, two or three hundred grams a day and as much tea or water as the infant will take. Being very thirsty they drink a good deal. We do not know why they are so thirsty. They vomit only when an intermittent dyspepsia is present.

When one cannot get breast milk give "eiweiss" milk with three per cent of carbohydrates in the beginning. In dyspepsia the amount of food administered may be increased rapidly, but it must be done slowly in decomposition.

When it results from bad food one can sometimes get along well with milk and water dilutions, but when the decomposition follows other causes, either breast or "eiweiss" milk must be used. In all severe cases, however, breast or "eiweiss" milk should be resorted to at once.

The medical treatment of decomposition includes caffeine, camphor, rectal instillations of Ringer's solution, twenty drops of brandy five times a day, and for the subnormal temperature incubators or electrotherms whatever the age of the patient may be.

There are mixed forms of decomposition and intoxication which are very difficult to treat and the prognosis of which are bad. In intoxication during atrophy from, for instance, buttermilk or other improper diet, tea or water for twenty-four hours will be required, which in cases of atrophy is liable to result in collapse.

INFECTIOUS INTESTINAL CATARRHS.

Infectious intestinal catarrhs are not due to chemical disturbances or metabolic changes, but result from the entrance of bacteria into the intestines. These cases may simulate first dyspepsia and second intoxication. Clinically they present the same picture but etiologically are different—one is alimentary in origin, the other bacterial. One never finds blood or pus in the stools of the alimentary diseases

(whether dyspepsia, intoxication or decomposition); when blood and pus are present they indicate an infection, not an alimentary disturbance. An exception to this latter statement sometimes occurs in the later stages of decomposition when occasionally an ulcer occurs at the juncture of the stomach and duodenum giving rise to blood occasionally in the stools.

The treatment is the same as in the alimentary disturbance which the infection simulates. Castor oil twice a day as long as the stools origin prevails. In the older infants, if you cannot get breast or "eiweiss" milk, buttermilk may be used without sugar, but in younger babies in whom buttermilk should never be used, if breast or "eiweiss" milk cannot be had milk dilutions should be employed.

Buttermilk is used only in three conditions:

- (1) Balance disturbances.
- (2) Habitual vomiting.
- (3) Severe intestinal intoxication of older children with considerable loss of weight.

Buttermilk and "eiweiss" are never diluted.

Babies bear the withdrawal of milk for a time without much difficulty, but cannot get along without water; so that in every case of diarrhea enough water must be given to meet the requirements of the body. Water not only prevents loss of fluid from the tissues and the consequent loss in weight, but the equilibrium of the circulation is maintained and the elimination of toxic substances through the kidneys favored.

If the infant will not take water by the mouth it may be given high in the bowel by the drop method. A small, soft rubber catheter is introduced as high as possible, say twelve or fifteen inches, and the apparatus so adjusted that one drop of water escapes every two seconds. In this way in the course of an hour or an hour and one-half from one hundred fifty to two hundred cubic centimeters of a solution of Koch's salts or Ringer's solution may be introduced and repeated twice a day.

In case the infant is intolerant of this procedure, the water should be given subcutaneously. As much water should be given each twenty-four hours as the baby would get normally with its food. An infant a year old in this way can be given from four to eight ounces of fluid every three or four hours.

Irrigation of the bowels once or twice a day with physiologic salt solutions is often useful in these cases. It serves simply to cleanse the colon and has no healing action. A soft rubber catheter is introduced as high as possible with the patient lying on the back and the hips elevated. The fluid is then permitted to run in from a bag placed about two feet higher than the body. The colon of an infant six months old will usually hold about a pint of water; that of one a year old about a quart. The water is allowed to run in and out until it returns clear no matter how much is necessary for this purpose. These irrigations should not be employed oftener than twice a day.

It is impossible to differentiate a case of decomposition from dyspepsia by the stools, as dyspepsia may arise in the presence of atrophy. It is also occasionally difficult to tell whether a case is one of intoxica-

tion or infection. If after treatment for twenty-four hours the somnolence, fever and other symptoms remain, one may consider the case to be one of infection, because usually by this time in simple intoxication great improvement has taken place. The treatment, however, is the same. The prognosis is better in the last mentioned condition.

It is not possible from the symptomatology to always accurately determine whether an infant is being overfed or underfed as many symptoms are common to both conditions. Evident hunger and a tendency to constipation point strongly to an insufficient supply of food. Whether or not this is the case can, of course, be determined experimentally by giving more food and observing the results. If, however, the case should be one of overfeeding considerable harm may be done and a good deal of time lost. A better way of arriving at a correct conclusion is to estimate the caloric value of the food.

It seems still to be believed by many pediatricians that the essential difference between mother's and cow's milk lies in the proportion of proteids, fats, carbohydrates and salts contained in each and that it is possible to make cow's milk resemble mother's milk for the purposes of infant feeding by changing the relative proportion of these ingredients. Limewater, bicarbonate or citrate of soda, et cetera, are often added to make the artificial preparation resemble mother's milk chemically as much as possible; but it is being recognized that these changes do not make human milk and that the essential problem in infant feeding is to provide a food adapted to the infant's digestive capacity, which supplies materials for making blood, bone and muscle, and which can be assimilated in sufficient amounts to promote proper growth and development.

Healthy infants who are unable to get breast milk should be fed simple milk dilutions with the addition of carbohydrate which is added in sufficient amounts to bring the caloric value of the food to the required point.

In a general way Finkelstein follows the calorimetric standard in the feeding of infants, giving one hundred calories of food per kilogram of weight in the early months of life and eighty calories per kilogram in the later months. He recognizes the fact, however, that premature or backward babies often require much more food than other babies of the same age or weight, and in these cases often raises the amount of food to one hundred fifty or two hundred calories per kilogram of body weight.

It must be understood that this calorimetric standard is not a method of feeding, but a check upon all methods, and should be used whatever method of feeding is employed; whether milk dilutions, modified milk, buttermilk, or "eiweiss" milk. It is the only way to determine with any degree of accuracy the amount of food an infant should receive in twenty-four hours, and also to determine whether the child is receiving the proper amount or not. Only in this way can it be determined whether a child is being overfed or underfed; whether the baby is receiving food far in excess of the amount it can metabolize or whether it is receiving less food than is necessary for the processes of growth and development.

By making a large number of observations on healthy breast-fed children who were thriving in every way, Hæbner found that in the first six months of life, infants consume daily an amount of milk equal to forty or forty-five calories per pound of body weight, and somewhat less than this in the last six months. Numerous observers have confirmed these results.

Its application to Finkelstein's methods is simple. One quart of "eiweiss" milk contains four hundred calories, one of buttermilk five hundred calories, and one of breast milk six hundred fifty calories. When, therefore, one has determined the number of calories an infant requires in twenty-four hours, it is simply a matter of adding to either of these enough carbohydrates to bring the total daily calories up to the amount required. The capacity of the stomach which serves as a guide for the maximum amount of liquid at each feeding is as follows for the first twelve months of life: 90, 100, 110, 125, 140, 160, 180, 200, 225, 250, 275, 290 cubic centimeters.

Healthy infants who are unable to get breastmilk are fed milk dilutions with the addition of a carbohydrate.

For the first month, the mixture is as follows: One-third liter cow's milk, two-thirds liter water, forty to fifty grams carbohydrate, five to ten grams of wheat flour. This gives a mixture containing four hundred fifty calories per liter.

In the second and third months: One-half liter of milk, one-half liter of water, forty grams of carbohydrate, twenty grams of meal. The meal and sugar are cooked in the water five minutes before adding the milk. One liter contains five hundred fifty to six hundred calories.

In the fourth month: two-thirds liter of cow's milk, one-third liter of water, forty grams of carbohydrate, twenty to thirty grams of flour; giving a mixture containing seven hundred calories to the liter.

In the later months of the first year, the food is prepared with three-fourths milk. No full milk is given until the end of the first year.

There are three kinds of carbohydrates which may be used in infant feeding:

- (1) Lactose or milk sugar.
- (2) Cane sugar.
- (3) Maltose.

Milk sugar is probably the most used and may be fed in relatively large quantities without producing diarrhea. It does, however, undergo bacterial decomposition in the alimentary canal more readily than the others.

Cane sugar is objectionable on account of its sweetness and because it easily produces diarrhea.

Inasmuch as maltose may be absorbed without further digestion and may be assimilated in much larger amounts than other carbohydrates, it should be the most useful of all. Unfortunately, however, it easily produces diarrhea. It is also very expensive.

Dextrin, a solution of carbohydrate, is a transition between starch and maltose. It has the same food value as maltose and does not produce diarrhea. On the contrary, when given in large doses, it causes constipation. It also produces greater growth in equal quantities than

does milk sugar. Combined with maltose, in such a proportion that the laxative action of the maltose overcomes the constipating action of the dextrin, it is probably the best carbohydrate we can use.

Such a mixture containing fifty per cent maltose and thirty-eight per cent of dextrin is sold in this country in the form of a popular patent infant food which is obtainable in every drug store.

It must not be forgotten that "eiweiss" milk is for *sick* babies and is given by Finkelstein to healthy babies only under one condition. In a large institution such as his, there is always more or less infection about, and inasmuch as infants who are being fed on "eiweiss" milk are less subject to secondary dyspeptic disturbances than those taking any other form of artificial food, all infants entering his hospital who are not given breast milk are fed "eiweiss" milk until they have become acclimated. Speaking broadly, "eiweiss" milk is indicated in all diarrheal disturbances. It is made as follows: Coagulate a quart of fresh, full milk with essence of pepsin and let it stand a half hour in a bath of about 105°. Then filter this through a linen sack, letting it hang over a clean dish for an hour, by which time the whey should have filtered out. The coagulated casein is then to be mixed with a pint of water and forced through a fine hair sieve. This is to be repeated two or three or more times until the coagulum is very finely divided and the mixture looks like milk. To this add one pint of fresh fat-free buttermilk. The water and buttermilk should be boiled before using. It is therefore, composed of the casein from one quart of milk and one-half quart of buttermilk; the fat from one quart of milk and the sugar and salt from one quart of milk and one-half quart of buttermilk. A chemical analysis shows it to contain three per cent of albumin, two and one-half per cent of fat, one and one-half per cent of sugar and five per cent of ash. It is, therefore, weak in sugar, containing one-third the amount found in cow's milk, and is also somewhat below cow's milk in fat and ash. It contains about the same amount of proteid as cow's milk which Finkelstein thinks is an advantage as the alkaline albumin neutralizes the acid fermentation of the sugar and is, therefore, useful.

"Eiweiss" milk is rather difficult to make, but I am happy to say that the nurses of the D. A. Blodgett Home for Children have mastered the difficulties of its preparation and I think will be glad to supply it to anyone.

84 Monroe Street.

REPORT OF TWO CASES OF ACIDOSIS; ONE WITH AUTOPSY.*

WARD F. SEELEY, M. D.

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Case 1.—Mrs. M., aged forty-eight, entered the Gynecologic clinic July 28, 1911. Family and personal histories are in all respects negative. She entered the hospital complaining of severe headache, diagnosed by Doctor Klingmann as migraine. There was also a tender

*Read before the Clinical Society of the University of Michigan, October 11, 1911.

area in the left lower quadrant, which had been said by her physician to be due to an abscess. Her gynecologic examination showed an inflammatory mass in the left side of the pelvis, extending into the posterior culdesac. Her lungs were negative. There was a systolic murmur at the apex and in the pulmonary area. Her urine on entrance showed no albumin nor sugar but a few granular casts were seen. Her stomach on two occasions showed no free hydrochloric acid.

Patient was operated upon August 8, 1911, panhysterectomy being done. The operation was a difficult one, there being many adhesions and was accompanied by considerable hemorrhage and oozing. The pelvis was packed with gauze, drainage being left from below. The operation required two hours and forty-five minutes to complete. The pathologic report showed the uterus to be of the fibroid variety, appendages adherent and one ovary cystic.

On the third day after the operation the patient began having frequent stools, which rapidly developed into a very severe diarrhea, with twelve or fifteen movements daily. This condition persisted until the fifteenth day and was accompanied by nausea and vomiting, which gradually grew more severe, for which purpose the stomach was repeatedly washed. On the afternoon of the fifteenth day after operation, the patient went into a state of collapse, with cold, moist extremities, violent hiccough, temperature of 102.2°, pulse of 120, and respiration of 34. Hypodermolysis was resorted to and the next day the patient was much improved. The nausea and vomiting, however, still persisted and gradually grew more and more severe. About the twentieth day the patient complained of difficulty in swallowing and upon examination of the throat a pseudodiphtheritic membrane was discovered. The patient at this time was unable to take nourishment by mouth on account of the excruciating pain accompanying the swallowing. Rectal feeding was then resorted to. At this time the abdominal wound having healed except for a small pocket at the lower extremity the patient was transferred to the Medical clinic. As the throat was practically clear the patient was tried on very small quantities of salt solution by mouth, but complained of intense pain in the lower thoracic region, and was consequently put again on rectal feeding. At this time the patient was nauseated and vomited at times, but the condition was apparently not so severe as previously. After four days of rectal feeding, nourishment by mouth was again tried and fairly well borne. The urine was very acid and showed both diacetic acid and acetone, which persisted in all subsequent examinations. Three or four days after this the vomitus began to show blood, the amount rapidly increasing. The stomach was washed with ice water and chloretone was given, with only temporary relief. There were suspicions of a pneumonic process but this could not be demonstrated clinically. The patient continued to grow weaker and the gastric hemorrhage more severe. Shortly before death the axillary temperature was 104°, pulse 160, respiration 72.

Autopsy findings:—Lungs; purulent metastatic pneumonia, congestion and edema, streptococcus infection. Heart; cloudy swelling, fatty degeneration and brown atrophy. Spleen; atrophy and chronic passive congestion. Kidneys; marked cloudy, swelling, numerous hyaline glomeruli, marked passive congestion and hyaline casts. Pancreas;

slight atrophy. Stomach; chronic catarrhal gastritis with cystic glands, Liver; extremely fatty degeneration and infiltration with simple necrosis; findings evidently due to some intense intoxication, either an infectious process or a combination of the same with chloroform or some other poisoning. Bladder; slight chronic cystitis.

* * *

Case II.—Mrs. O., aged forty-eight, was admitted to the Gynecologic clinic August 8, 1911. She came to the hospital for excessive flowing during her menstrual periods and for an abdominal tumor. Her family and personal histories were practically negative except for occasional attacks of vomiting, without apparent cause, which began in December last. On entrance her blood was negative. The urine showed albumin and hyalin casts, but no sugar. Gynecologic examination showed a large fibroid uterus with adherent appendages. Examination of the heart showed the apex to be in the fifth intercostal space well beyond the middle clavicular line. There was a loud systolic murmur at the apex, transmitted to the axilla with accentuation of the pulmonic second. Examination of the lungs was negative. There was a slight Graeffe sign, a moderately enlarged thyroid, fine tremor of the fingers and heart rate of 114. A diagnosis of mitral insufficiency, chronic interstitial nephritis and hyperthyroidism was returned with advice that patient be transferred to the Medical clinic for treatment and further observation before operation. On entrance into the Medical clinic the patient was put on a course of digipuratum which was quite successful in reducing the heart rate. When sent back to the Gynecologic clinic for operation, the rate varied between 80 and 88. The urine was free from albumin but a few casts were found. No glucose was present at any examination.

The operation (panhysterectomy) was a severe one, the uterus being bound down by adhesions, so that it was impossible to elevate it and deliver it without the abdomen. After the operation, for a few days, the patient's condition was uneventful, when a paroxysmal irregularity of the heart, of the permanently irregular type, developed. This condition continued intermittently and is still noted at times. The pulse ran from 120 to 135, but the temperature was not elevated in proportion. On the eleventh day after the operation, the patient began to complain of nausea and vomited small amounts. The condition, however, did not become severe until the fifteenth day.

The patient at this time was having frequent stools, averaging seven daily and on the twentieth day nourishment by mouth was refused. Shortly after this patient was again transferred to the Medical clinic, the laparotomy wound having healed by first intention. On entrance into the medical service the patient was extremely nauseated, vomited frequently and was put on rectal feeding and given gastric lavage with ice water. There was a sweetish odor to the breath and acetone was demonstrated in the urine, which was very highly acid. The pulse varied from 128 to 144, temperature about 99°, blood pressure 138. Vomitus showed no free hydrochloric acid. Sodium bicarbonate in doses of two drachms, twice daily, was given by rectum; and as soon as the nausea somewhat subsided, liquids containing considerable sugar were taken by mouth. Hypodermoclysis of ten ounces of a two-per-cent solution of sodium bicarbonate was given under each breast.

It was gratifying to note that on the third urinary examination, after entrance, tests for acetone were negative and the urine alkaline. The diarrhea, which had heretofore been rather severe, also diminished and at the present time the patient is having only one stool daily. Progress has been rapid since the acidosis has disappeared and unless there are further complications, recovery can be looked for.

In a discussion of acidosis, Edsall, in the *British Medical Journal*, states "that as a consequence of the use of ammonia to neutralize the acid, ammonia is excreted in abnormally large amounts in the urine, and the presence of ammonia in abnormal quantity, is therefore an index of the extent of acid intoxication." In the human body only one acid is known to occur in quantities large enough to be dangerous, the acid in question being beta-oxybutyric. Acetone and diacetic acid are oxidation products of the mother substance. Diabetes is of course the classic condition in which the acidosis is found; other conditions are starvation, various poisonings especially by some of the narcotics; severe digestive disturbances; cyclic vomiting of children; acute yellow atrophy; phosphorous poisoning; eclampsia; after anesthesia and in certain neurologic conditions.

The occurrence of a large amount of acid in acidosis is dependent upon two main factors, the inability to use carbohydrates and the coincident excessive use of fats. The same conditions obtain in starvation, where no carbohydrate is taken and large amounts of body fat are burned. Cases are seen, however, in which acidosis is clearly marked at the very beginning of the symptoms, when there has been no change of diet. There are, therefore, two types of acid intoxication. In the diabetic type there are no tissue lesions sufficient to explain the amount of intoxication. In the other type there are serious lesions, which evidently may of themselves be enough to produce violent symptoms.

The work of Reichter on the influence of narcotics upon the fat content of the blood, shows that such substances as chloroform mobilize large amounts of body fat. The oxidation process being probably reduced by the chloroform, the fats are not properly oxidized and their by-products in the form of acids accumulate in large amounts. That the acids do harm in these conditions is shown by the fact that in a fair proportion of cases, as Wallace and others have shown, carbohydrate and alkali treatment will go far toward preventing postanesthetic intoxication.

The older literature on the subject of acidosis lays much stress on chloroform poisoning. More recent work, however, shows that this condition occurs frequently after ether, as well. The length of anesthesia, while to some extent an index to the amount of intoxication, is not always reliable for diagnostic purposes as both acetone and diacetic acid are found after anesthetics of not unusual length. French authors lay considerable emphasis upon the acetone vomiting.

In regard to the autopsy findings in acidosis, those of Mrs. M. are quite typical. Acute degeneration of the liver with fatty degeneration and infiltration is the common finding. Fatty degeneration in other organs, as the heart, is also frequently found. It must be understood, however, that these findings are only typical in cases of the second type above described, there being no lesions in the clinical form of which diabetes and starvation are types.

EXCISION OF THE LARYNX FOR MALIGNANT DISEASE.*

REGINALD C. PLUMMER, M.D.

ANN ARBOR, MICHIGAN.

THE patient, a farmer, resident of Michigan, aged sixty-two, of American parentage, was referred to the Otolaryngologic clinic from the Medical clinic for examination of the nose and throat. The patient gave a history of having been hoarse for two years, gradually becoming worse so that at the time of the examination he was unable to speak above a whisper. He also complained of increasing difficulty in respiration, particularly at night or when he attempted to lie down. Patient stated that he had been compelled to rest in nearly an upright position most of the time. He had lost considerable weight, although he did not know how much. He had a dry cough and perspired freely at night.

Examination showed the patient very much emaciated and weakened, face somewhat cyanotic, with great difficulty in breathing which made it difficult for him to talk. Examination of the larynx showed marked infiltration of the left false cord and at the base of the left arytenoid, and considerable edema over the base of the epiglottis in the median line. Both ventricles were filled with a papillomatous mass covering the right cord entirely and the left partially and appearing below the cords in the subglottic space, leaving merely an irregular slit through which the patient was able to breathe. External examination showed a few glands in the submaxillary region, and the left side of the larynx slightly more prominent over the thyroid cartilage than the right. Physical examination revealed piping, squeaking râles over the chest with increased resonance over the back, but no dullness. Complete laryngectomy was advised. This, however, the patient refused at this time, but decided to submit to a tracheotomy for relief of his difficult respiration. Tracheotomy was performed and a large tracheotomy tube placed in position.

The patient made a good recovery and went home against advice promising to return in a week for further examination and for consideration of complete removal of the tumor.

During the tracheotomy a specimen of the growth was removed which was sent to the Pathologic laboratory and a report returned by Doctor Warthin of squamous celled carcinoma, a diagnosis corresponding with the clinical findings.

The patient returned about a week later having gained nine pounds and otherwise being improved. Examination of the larynx, however, showed some increase in the tumor mass. Complete excision was again advised and the patient in view of his improvement with the tracheotomy tube consented to the operation.

Operation.—Complete laryngectomy. The patient was placed upon the table, the head of which was tipped down very low to prevent the aspiration of blood during the operation. Incision was then made from somewhat above the cricoid cartilage to the notch of the sternum. The incision was carried down through the superficial and deep fascia to the larynx and trachea in median line. The larynx was dissected

*Read before the Clinical Society of the University of Michigan, October 11, 1911.

out on either side to the esophagus. After the tissues were retracted away the growth was seen to have forced its way through the thyroid cartilage in its lower portion on the left side. The tracheotomy tube was removed. The trachea was severed at this point because the growth had invaded and filled the subglottic space practically to that point. With great care the larynx was freed from the esophagus, the vessels being tied and cut as they were approached. The larynx was tipped up and out until the upper margin of the esophagus was reached, whereupon it was severed from the esophagus, the incision being carried around passing the base of the epiglottis. As there was no evidence of any growth in this region, the epiglottis was left in position. The larynx with tumor having been removed, the mucous membrane of the anterior esophageal wall was sutured with continuous sutures of twenty-day catgut to the mucous membrane of the epiglottis and the muscles of the tongue. The fascia over the esophagus was sutured to the deep fascia of the tongue, making a secondary line of retention sutures. The deep fascia and the muscles were brought together in the median line with catgut down to the point where the open end of the trachea was brought out and made fast to the skin by anchor sutures, the skin being sutured with silk down to the opening of the trachea.

The head of the table was kept low throughout the operation and the patient was carried in this position to his bed, the foot of which was raised about two feet. The patient was in good condition although the heart was slightly intermittent. He was given whisky and coffee by enemas, and salines were ordered for every four hours and later alternated with nutritive enemas. The patient reacted from the anesthetic and expressed his good feelings by attempting to whisper and by a strong grip of his hand.

The second day there seemed to be considerable infiltration along the sides of the neck and edema over the face. On the third day the bed was lowered about one third the way, the patient complaining of severe headache. On the fourth day the bed was lowered completely and the patient felt much relieved, the wound being in good condition. On this day the patient wrote that pain on swallowing had practically disappeared so liquids were started by mouth in increasing amounts until the sixth day when the nutritive enemas were discontinued. Thereafter the patient took all nourishment by mouth. From this time on he improved rapidly and on the ninth day was out of bed in a wheel chair for an hour, feeling only slightly fatigued when he was returned to bed. On the tenth day the anchor sutures were removed. The trachea was found firmly adherent to the soft parts and the mucous membrane firmly attached to the skin.

From this time on recovery was uneventful, the patient remaining at the hospital merely to get the best possible result at the bottom of the wound at the attachment of the trachea to the skin. The patient gained twenty pounds during the month following the operation, making a total of thirty pounds gained in weight since coming to the hospital.

I desire to state that the smooth and rapid convalescence of the patient was due to the untiring efforts of Doctor Smith and Doctor Lorie.

A REPORT OF A CASE OF EXSTROPHY OF THE BLADDER
WITH SPLIT PELVIS IN A WOMAN THE
MOTHER OF TWO CHILDREN.*

HARRY B. SCHMIDT, M. D.

ANN ARBOR, MICHIGAN.

(From the Obstetric and Gynecologic Clinic of the University of Michigan.)

THE patient, Mrs. V. S., twenty-seven years of age, American, married, was admitted to the Gynecologic service of the University Hospital September 12, 1911. There is nothing of interest in her family history. She has three brothers, all living and in good health and one sister died in infancy. As far as the patient knows, there are no diseases of a chronic or hereditary character or abnormalities in the family. The patient and all others of the family are below the average height. Her husband is thirty-seven years of age and in good health.

Personal History.—The patient has had the measles, chickenpox, pneumonia at seventeen, and mumps this present year with good recoveries. She has been always fairly well and thinks that if it had not been for her deformity she would have always been strong and in very good health. She has done light housework and until recently has had very little discomfort on exertion. Before her marriage she danced considerably and without pain. Her husband knew her condition before he married her. Intercourse is not painful and she is very passionate. Her first menstrual period began at the age of eleven. She has continued regular ever since, twenty-eight day type, duration four days.

Patient is of a short, stocky build, with excellent muscular development and has a good form. She stands on the left leg when at rest, stooping slightly. She walks with a shuffling gait, carrying the left shoulder down. Physical examination is negative. There is no difference in the length of her legs.

The abdomen is slightly full and the umbilicus is not in its usual position. In the lower abdomen, beginning at the normal site of the umbilicus, there is a groove extending downward twelve centimeters. At this point, which is about the normal location of the mons, there is a soft swelling lying transversely, six centimeters long by three and five-tenths centimeters wide and one and five-tenths centimeters above the level of the surrounding skin. The skin above this line is depressed forming an irregular groove. Above this swelling is a scar, probably the umbilicus. Below, there is a moist red surface, resembling mucous membrane which is continually moistened with fluid having the odor of urine. There was no meatus found. The mouths of the ureters could not be seen. The swelling described above is separated from the vagina by a bridge of tissue one centimeter in thickness which is stretched tensely across the gap. On either side are labia covered with hair. These do not unite above but extend upward and outward, being separated by the cystic swelling above. The labia minora lie on the inner surface of the labia majora. At the upper extremity of the left labium minus is a small tag, probably the clitoris. No definite urethra can be made out. The pubic bones are not united, being separated by about

*Read before the Clinical Society of the University of Michigan, October 11, 1911.

seven centimeters. The external perineum is intact, the internal is torn, and there is some bulging of the anterior vaginal wall. The uterus is prolapsed and retroverted, and there is a laceration of the cervix. She was too tender for palpation of the appendages.

Patient was married at seventeen years of age. She has two living children in good health. The first child was born in 1903, one year after marriage. She came to full term much distended. The labor lasted thirty-three hours but no instruments were used. The child weighed six and one-half pounds with clothing. The second child was born in 1904. This labor was of three hours duration and the child weighed seven and one-half pounds with clothing. The mother made a good recovery after each labor.

Remarks.—Exstrophy of the bladder is not a very uncommon condition. It is more common in males than in females, the proportion being nine to one. It has been observed that the greatest variation in this condition arises from imperfect development or the absence of different portions of the genital organs and that the amount of sexual desire seems to be in proportion to their perfection. The most interesting and remarkable fact about this case are that the patient has been married nine years to a man in good health and that she has had two children who are healthy and well. I can find but six cases reported in the literature up to the present time where women with this deformity have borne children. The first was reported by Bonnet in 1722; the second by Ayers in 1859; the third by Litzmann; the fourth and fifth by Gunzberg; and the sixth by Gusserow, in 1879. In the limited time at my disposal I have been unable to find any cases reported since Gusserow's case.

PERINEPHRITIC ABSCESS RESULTING FROM PERFORATION OF A DUODENAL ULCER.*

JOHN H. PETTIS, M.D.

ASSISTANT IN SURGERY IN THE UNIVERSITY OF MICHIGAN.
ANN ARBOR, MICHIGAN.

Miss S., aged eighteen, student, entered the Surgical clinic of the University Hospital July 20, 1911, complaining of pain in the right upper quadrant of the abdomen, lameness and stiffness of the right side at the level of the waist line. With the exception of measles at fourteen and one attack of tonsillitis two or three years ago she has always been well until the beginning of the present trouble about two weeks ago. She began to menstruate at thirteen and has always been regular till one month ago when she missed her period. Her family history is unimportant.

About two weeks before entering the hospital the patient noticed a slight lameness and tenderness on the right side just below the ribs. This grew gradually worse and two days later she consulted a physician who told her the pain was due to the missed period. He gave her some medicine to bring on the flow and also prescribed a counterirritant for the painful area. For about a week her condition

*Read before the Clinical Society of the University of Michigan, October 11, 1911.

remained about the same. She was able to be about the house but her appetite was poor and she thought she had some fever at times. She again consulted the physician and on the way home from his office became faint and felt very ill although she did not lose consciousness. On reaching her room she lay down and soon felt much better. During the following few days the pain became more acute at times and was made worse by attempts to move about the house. She also states that she had several chills during this time. She now consulted a second physician who advised her to come to the hospital.

When examined at entrance the patient complained of severe pain on the right side just below the costal margin. Palpation in this region revealed a rather indefinite mass extending about three inches below the ribs and reaching to the midline. The mass did not descend on respiration and could not be moved about. The area was very tender to the touch and there was considerable spasm of the rectus. The temperature at this time was 100°, pulse 110, respiration 30. Blood examination showed the hemoglobin to be 90 per cent, 4,480,000 red and 19,650 white cells. Urine negative. During the night the patient vomited a considerable quantity of greenish-yellow fluid. On the second day of her stay in the hospital, July 21, the patient's condition remained about the same but the temperature rose to 103° in the afternoon, pulse 120. The white blood count was now 22,700. During the night she again vomited a large quantity of greenish fluid.

She was operated on by Doctor Darling on the morning of July 22. An incision was made through the right rectus muscle and the abdomen explored. A mass, thought to be retroperitoneal, was found in the region of the right kidney. The incision was therefore closed and a second incision made in the lumbar region parallel to the costal margin. This was carried down by careful dissection until the lower pole of the right kidney was exposed. In separating the kidney from its fatty capsule an abscess cavity was broken into and a small quantity of very thick, creamy, greenish pus escaped. Drainage was left in place and the wound closed. Microscopic examination of this pus showed many colonies of cocci which did not stain with Gram's.

For two days following the operation the patient's condition remained about the same as before. She continued to vomit at intervals and still complained of much pain in the right side. However, the white blood count continued to rise. On the third day her condition became worse, she vomited more frequently and the vomitus began to have a fecal odor. The urine became very much reduced in quantity although its examination showed no abnormal constituents. On the third day she became much distended but was partially relieved by stomach washing. Her white count was now 3,6000 with 190 polymorphonuclears in a count of two hundred cells. She died on the fifth day after twenty-four hours of alternating periods of delirium and coma.

Consent for only a very limited autopsy could be obtained which was done by one of the interns. On the posterior surface of the first part of the duodenum was found an ulcerated area about the size of a copper cent at the base of which was a very small perforation.

This perforation connected with an abscess cavity lying posterior to the upper pole of the right kidney and containing about two ounces of very thick, greenish-yellow pus. Section of the kidney showed that it contained a large number of small purulent foci. There was no generalized peritonitis and except for a very much dilated stomach there were no other abnormal findings.

This case is not reported because of its rarity for many similar cases are referred to in the literature and have been encountered by most surgeons of large experience. The fact that ulcer of the duodenum has no definite symptomatology and may remain latent without giving any symptoms at all is well illustrated by this case. It should be noted that the ulceration and perforation did not occur on the anterior peritoneal covered portion of the gut as in the majority of these cases and that there was very little if any leakage of the intestinal contents. It is also interesting to note that in spite of the fact that this kidney showed multiple purulent foci scattered throughout its parenchyma, at no time did the urine give any indication of such a process. The fact that this patient had always been regular in her menstruation to within two weeks before the symptoms of her illness began and then missed a period is interesting. It is possible that this was due to a hemorrhage from the ulcer but in this case the patient would have probably shown a secondary anemia which was not present in this case.

A REPORT OF A CASE OF PUBIOTOMY FOR FACE PRESENTATION.

REUBEN PETERSON, A. B., M. D.

PROFESSOR OF OBSTETRICS AND GYNECOLOGY IN THE UNIVERSITY OF MICHIGAN.

ANN ARBOR, MICHIGAN.

(From the Obstetric and Gynecologic Clinic of the University of Michigan.)

I DESIRE to place the following case on record not only because of the rarity of the treatment instituted but because it will throw some light upon what may be accomplished by the comparatively new operation of pubiotomy.

Mrs. B. W., obstetric number 616, aged twenty-two, a full term primipara went into labor early in the morning of September 24, 1911. Although she had continuous pains throughout the following twenty-four hours, her physician, Doctor Neal A. Gates, was not summoned until 1:30 the next morning. Examination showed a face presentation with chin to the right and posterior. The patient was anesthetized and an unsuccessful attempt made to push the head upward with the idea of doing a version. She was admitted to the Maternity hospital at 4:30 A. M. At this time, the cervix was fully dilated, the membranes ruptured, and the head immovably fixed in the pelvis with the chin to the right and posterior.

I saw the patient first about 5 o'clock and decided upon pubiotomy which was performed soon afterward.

*Read before the Clinical Society of the University of Michigan, October 11, 1911.

With the patient in the lithotomy position, an inch and one-half incision was made over the right pubic bone inward from the pubic spine. After carrying the incision down to the bone and excising the periosteum, with the finger in the vagina as a guide a Bumm pubiotomy needle was passed downward hugging the pubic bone closely until the point was made to pass out through the upper and outer part of the right labium majus. The latter was drawn to the right so that the needle point would avoid the labial venous plexus. The Gigli saw was threaded into the eye of the needle and the latter withdrawn. The pubic bone was severed without difficulty. Following the division of the bone and withdrawal of the saw there was a slight hemorrhage which was easily controlled by sponge pressure. Forceps were now applied according to the sides of the pelvis, the fragments of the pubic bone being allowed to separate about three to four centimeters. The head was drawn and pushed down and after two or three applications of the forceps blades to the fetal head, the chin was successfully rotated under the symphysis and the head delivered by flexion. The child, a girl, was easily resuscitated. There was a slight abrasion of the mucous membrane at the outlet of the vagina but no perineal laceration. There was a vaginal tear communicating with the pubiotomy incision. Its edges were sutured with catgut and a small gauze drain inserted along the line of incision. The severed edges of the pubic bone were brought together closely and held firmly by means of bands of adhesive strips. A temporary Bradford frame was improvised out of an ordinary hospital stretcher. The pubic incision was closed with silkwormgut sutures.

The patient has made a most satisfactory convalescence. There has been some elevation of temperature evidently connected with the pubiotomy wound for the lochial discharge has not shown any signs of sepsis. There was some edema of the vulva and inability to void urine. These symptoms were never marked and soon ceased. The patient was removed from the frame on the twelfth day and allowed to turn on her left side two days later.

Examination of the baby the day after birth showed marks of the forceps blade on the right side of the neck and paralysis of the right arm. At first the arm was completely limp, but it has improved steadily up to the present time until now there is considerable resistance manifested when attempts are made to move the arm.

Careful measurements of the baby's head ten days after birth showed it to be of the dolichocephalic type, possibly explaining the presence of a face presentation in this case.

In face presentation with an unrotated fixed chin posterior, the choice lies between craniotomy and pubiotomy with, of course, the preference given to the latter if the child be living. Abdominal Cesarean section is contraindicated because of previous attempts at rotation from below and because of the difficulty of extracting a fixed head from above.

It was certainly very gratifying to observe the comparative ease with which the chin was rotated up under the pubes after the pubic bone was separated and would lead me to select the operation again under similar circumstances.

TRANSACTIONS.**CLINICAL SOCIETY OF THE UNIVERSITY OF MICHIGAN.**

STATED MEETING, OCTOBER 11, 1911.

THE PRESIDENT, ALBION WALTER HEWLETT, M. D., IN THE CHAIR.
REPORTED BY REUBEN PETERSON, M. D., SECRETARY.

READING OF PAPERS.*PERINEPHRITIC ABSCESS RESULTING FROM PERFORATION OF A
DUODENAL ULCER.*

DOCTOR JOHN H. PETTIS read a paper bearing this title. (See page 373.)

DISCUSSION.

DOCTOR CYRENUS G. DARLING: There was nothing in the patient's history to indicate the time when the perforation occurred. The abscess was well walled off and it would seem from its appearance that it had been formed some time previous to her entrance to the hospital.

The relation of this abscess to the kidney also presents some very interesting points; first, it probably penetrated the covering of the kidney, at least to such an extent that infection passed directly from the abscess to the kidney and that the abscesses found there were not due to a general infection. This kidney or the urine did not present any microscopic indications of trouble, no blood, no pus in the urine, yet in this kidney were found numerous foci of infection, pus, and one blood clot where the kidney was damaged at the time the opening was made. This shows that sometimes there may be infection in the kidney and also pus and blood present without being found in the urine. It would be interesting to know whether this kidney was active at the time, or whether its action was suppressed entirely. I took particular pains to locate this trouble, because when the patient was brought here the attending physician had made the diagnosis of appendicitis. In a number of these cases of perinephritic abscess one finds that the appendix is the point of infection; the tip of it may be turned back towards the kidney, infection occurring in this way.

Upon opening the abdomen there was found a smooth surface of peritoneum. I felt this mass through the abdominal opening, and while I did not have in mind a possible perforation from the stomach or duodenum as the origin of the abscess, I did not see anything in the abdominal cavity that would lead me to suspect that that was the point of origin. In making an opening behind I carried my finger deep into the wound until I felt a cavity, and withdrawing it, the pus followed; but this was only the lower side of the kidney and the opening had not been carried into the abscess above where it had found its way through into the structures surrounding the kidney. I do not know that we would have been able to do much for this patient even if we had found this opening. From its location it would have been very difficult to make any repair of the intestine; still if we had made a complete drainage of the abscess the chances of recovery probably would have been much better.

DOCTOR PETTIS (closing the discussion): It is unfortunate that a complete autopsy was not allowed in this case, for, under the circumstances, we are left in doubt as to the origin of the suppurating foci in the right kidney. This abscess involved the fatty capsule of this kidney, and it is quite likely that this involvement was due to direct extension of the process from this point. If the infection in the kidney took place by way of the blood stream we would expect to find similar lesions in the other kidney as well as in other organs. We have no pathologic report to settle this point.

EXCISION OF THE LARYNX FOR MALIGNANT DISEASE.

DOCTOR REGINALD C. PLUMMER read a paper on this subject. (See page 370.)

DISCUSSION.

DOCTOR R. BISHOP CANFIELD: I regret exceedingly that I was not present at the operation. I was extremely interested to read the history, to examine the specimen of the larynx, and to know that the operation terminated successfully.

Total removal of the larynx is infrequently attempted on account of the fact that in the past unsuccessful results have been almost universal. With the better methods of early diagnosis of carcinoma of the larynx and with the better operative technic in cases where the malignant growths have not infiltrated the surrounding tissues, a few satisfactory results have been secured. Here is a larynx that shows almost exactly the condition that was discovered before the operation, namely, a malignant growth involving both sides of the larynx and confined to its interior. It was perfectly clear to Doctor Plummer that nothing less than a total laryngectomy would be of any service.

I can do nothing but commend the technic used, but would suggest that if the dissection of the larynx from the surrounding tissues and esophagus is performed without tracheotomy and under local anesthesia, the entire operation can be carried out until one is ready to remove the larynx, before sectioning the trachea. At that time, with all the hemorrhage stopped and the patient in the semirecumbent position the trachea can be sectioned transversely, the lower end sutured immediately to the skin, while the larynx is packed with gauze. In this way danger of gravitation of blood into the lungs is avoided. Doctor Plummer accomplished this by keeping the head of his patient low. It is a fortunate thing that the operation was performed before the growth extended upward sufficiently to involve the base of the epiglottis. It would have been a very difficult thing to secure enough mucous membrane to form a flap sufficiently strong to separate the mouth cavity from the wound cavity. In such case it becomes necessary to pack the upper end of the wound until the entire cavity can granulate over, a procedure which is very slow and tedious. I am very proud that the doctor did this operation and secured the result he did. The photograph of the patient shows how eminently well satisfied he is with his condition. It was amusing to hear Doctor Plummer say that the patient told him he felt fine after his larynx had been taken out; he must have shown it.

Now comes the question of what shall be done to make it possible for him to speak? Can an artificial larynx be used to enable him to articulate plainly? A device was brought forward some years ago, one end of which is placed in the lips of the wound and the other brought externally to the patient's lips. Such a device is awkward, unsatisfactory, draws the attention of the public, and is not of much use. The patient can be taught to speak plainly by using his lips. He can be taught to make use of an explosive speech which is quite intelligible, consequently he does not become dumb.

It will be interesting to watch this patient for the next two or three years. We believe that a patient's tracheotomy life is about as long as his catheter life. If, then, this man has no recurrence we may expect in the ordinary course of events that he will live a couple of years. He has a very fair chance of remaining well as far as the malignant growth is concerned, since all that was involved has been removed. I saw several laryngectomies this summer, in not one of which do I think the patient will recover.

DOCTOR ALBION W. HEWLETT: This case illustrates the value of having a specialist at hand. The early diagnosis was tuberculosis. The stridor caused by the laryngeal obstruction confused the lung signs and the examination of the larynx did not at first reveal the true character of the condition. Tracheotomy was performed on account of the threatening laryngeal obstruction and the tissues removed gave the true diagnosis.

DOCTOR PLUMMER (closing the discussion): Perhaps he did not give voice to his feelings, but he certainly expressed them in every way possible for him to do. Before leaving the hospital he was able to make lip sounds and one could understand very well what he was trying to say. In fact the last time I saw him, I talked with him five or ten minutes and he was using his lips entirely and by sort of an explosive effort was able to make sounds that were very easily understood. He was very much pleased with his ability to do this and practiced it constantly.

A REPORT OF A CASE OF PUBIOTOMY FOR FACE PRESENTATION.

DOCTOR REUBEN PETERSON contributed a paper bearing this title. (See page 375.)

DISCUSSION.

DOCTOR CARL D. CAMP: Brachial birth palsy is probably as old as forcible intervention in obstetric practice. Smellie described, as long ago as 1768, a compression paralysis of the arm, occurring at birth, in a case of face presentation delivered with forceps. It occurs about once in two thousand labors, according to Duvall, and often occurs in highly skilled hands, as in the case of Emperor William, of Germany, on which occasion Sir William Jenner was the accoucheur. Duchenne described the condition at some detail in 1862, but the nature of the lesion causing the paralysis was not definitely known at that time. Two classes of cases were then recognized; those that recovered promptly and were, I believe, correctly attributed to pressure on the brachial plexus by instruments; and a second class which, though often apparently less severe than the first, showed but little tendency to recover. These latter cases were thought to be due to injuries to the bony parts, separation of the epiphysis, et cetera. In

1897, Fieux published an essay in which he reported experimental work which led him to believe that overstretching was the chief cause of brachial birth palsy. Clark, Taylor and Prout believe that the paralysis is due to an overstretching and tearing of the nerve. They performed some experiments showing that when the head and shoulders are pushed apart the brachial plexus is under tension and may be torn, first, the fifth cervical nerve, then the sixth and so on. This occurs if the shoulder is obstructed either at the brim of the pelvis or at the symphysis, or if the head is rotated or oscillated, or in a breech presentation when the fingers are hooked over the back of the neck and the shoulders are pulled down to deliver the after-coming head. Taylor says that "forceps cannot be a factor of moment because the blades will not reach as low as the site of the lesion, when traction is applied." In this I think he is wrong. In the case presented by Doctor

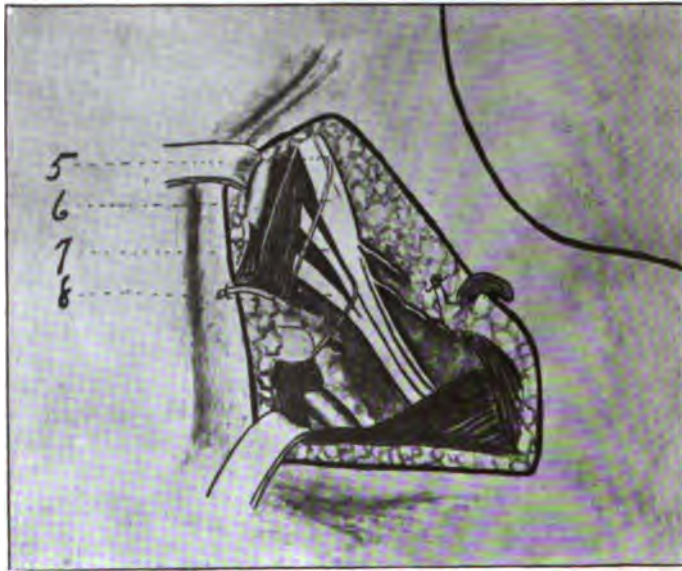


FIGURE I.—Brachial Plexus.

Peterson this evening, the forceps reached low enough to press on the brachial plexus as shown by the mark on the child's neck. I believe that there is a different etiology for the first two classes of cases. In the first the etiology is pressure, the paralysis is widespread, involving the whole arm but clears up rapidly, as is usual in cases of pressure palsy. In the second class, the etiology is tension, the nerve is torn, the paralysis is more limited in extent but, owing to the development of cicatricial tissue within the nerve sheath, it is a permanent paralysis. The clinical differentiation between these two classes cannot be made definitely within the first few months or so, but it is reasonable to suppose that the laceration would be attended by considerable pain in the nerve and the infant would be peevish and fretful, whereas in the pressure paralysis there is usually little or no pain. The pressure paralysis will recover completely in from three to six months and

sensory and trophic symptoms are not marked. In the laceration cases the paralysis, while it may show some improvement, does not recover and trophic changes occur. These latter cases have been operated upon successfully by the exsection of the injured portion of the nerve. Kennedy counsels operation at the end of three months but Clark and Taylor prefer to wait a year, using in the meantime such measures as massage, electricity, et cetera. Taylor has operated upon a child ten years old, paralyzed from birth, and obtained remarkable improvement even at that age. The site for the incision in this operation is shown in a drawing made by Doctor Cummings (Figure I.) This drawing shows the position of the nerves and how a rotation of the head or pushing the head to one side can put them under tension. The lesion which results is usually located at about the point where the fifth and sixth nerves join.

With regard to the prognosis in the case under discussion, it is too early as yet to give a definite opinion. The fact that the arm can be drawn across the chest means nothing in this connection because that movement is brought about by the pectoralis muscles. Also the opening and closing of the hand shows only that the lower part of the brachial plexus is intact, whereas it is in the upper cords that the lesion is usually located. The really important test is the paralysis of the upper arm muscles.

DOCTOR GEORGE KAMPERMAN: This is a very interesting case because of its rarity. It is the first operation of the kind that has been performed in this clinic. While pubiotomy is not entirely new, the intense interest now shown in it is comparatively recent. Williams, of Baltimore, has probably done more than anybody to popularize it in this country.

I think it would be safe to say that in a way the results of pubiotomy have been disappointing. When first advised in this country the enthusiasm concerning it was so great that it promised to supplant Cesarean section. Later reports made one more conservative as far as the use of the operation was concerned. We now think that cases for pubiotomy should be carefully selected, and this would naturally narrow its field a great deal. Obstetricians have long been looking for some means to deliver patients with contracted pelves who had been infected by previous attempts at delivery. It was hoped that pubiotomy would prove to be a safe operation whereby these infected patients could be delivered. But with further experience this hope had to be abandoned. The morbidity following pubiotomy on infected cases was too great. Pubiotomy should be a primary operation and should not be resorted to simply after everything else has failed. The patient should be clean and not infected, and this would narrow its field of usefulness to a limited extent. There are no doubt many cases in which it is indicated, yet it is not the operation that will do everything that obstetricians at first thought it would do.

One interesting thing in the postoperative history, the cause of which has never been explained, is the occurrence of abdominal distention. That was the case with this patient, and Williams sees it frequently in his cases also. It is quite easy to see how an abdominal operation should be followed by tympanites, but in pubiotomy, the abdomen is not opened and the tympanites is hard to explain. Most likely

the operation has nothing to do with the paralysis the latter being due to the position of the head (face presentation), or perhaps to the forceps delivery. The cutting of the pubic bone has probably no relation to the paralysis.

DOCTOR HOWARD W. CUMMINGS: I am much interested in this case from the standpoint of the after treatment. On the fourteenth day the patient was taken off the Bradford frame. These patients formerly were kept on the frame for about four weeks and treated much like ordinary fracture cases. On the fourteenth day this patient was turned on her side; on the twenty-first day we expect to get her up, and have her walking on the twenty-fourth day. This is the way Williams treats his patients now and it seems to work out very well.

DOCTOR CYRENUS G. DARLING: I think this case illustrates very clearly the danger which may come from the use of the forceps and the value which may accrue from surgical interference in obstetric practice. Anyone who has used the forceps cannot but be impressed with the possible dangers which may result from their employment and will be more and more inclined to resort to them less, or indeed to get along without them entirely. The value of surgical interference in many of these cases is rapidly becoming appreciated and it is right that it should be so. The lives of a great many children can be saved by surgical interference, and in many instances there will be a saving of the mothers as well.

*A REPORT OF A CASE OF EXSTROPHY OF THE BLADDER WITH
SPLIT PELVIS IN A WOMAN, THE MOTHER
OF TWO CHILDREN.*

DOCTOR HARRY SCHMIDT read a paper on this subject. (See page 372.)

DISCUSSION.

DOCTOR DEAN LOREE: As Doctor Schmidt states, cases of exstrophy of the bladder are not uncommon. This patient came to the hospital while I was away and I did not see her. One patient came to the clinic last year, a male, and I think there have been six cases in all in the last ten years. There is probably no more deplorable condition than genital deformities and malformations, such as exstrophy of the bladder. I think that all the cases I have seen were in the male.

The operations for this defect may be divided into two classes; the older operations consisting entirely of plastic work and the later operations of transplantation of the ureter into the intestine. The old operation took a long time. The plan was to take flaps from the abdominal wall, the first flaps with the skin turned in to form a lining for the new anterior wall and after this graft had proved successful, other flaps were taken from the abdominal wall with the skin out. These flaps were to make the outer covering. There were necessarily a great many failures and the successful case required a long period of treatment. When successful the only end gained was a new anterior wall. At best the operation had its drawbacks. A perfect sphincter could not be secured. The new urinary opening constricted so that no matter how good an anterior wall was obtained there was

incontinence, and more than that incrustations formed on the bladder wall, there was a great deal of irritation and the patient was very uncomfortable. Many otherwise successful operations were ruined because the newly formed bladder had to be opened to get rid of these irritating substances deposited on the walls of the bladder. The later operations for this condition have been more successful and probably will be even more so in the future, for no doubt many deaths resulted from poor technic.

Operations have been devised for transplantation of the ureters. Probably the most successful are those where a portion of the trigonum together with the ureteral orifice has been removed and transplanted into the sigmoid flexure. Many of these cases have been reported. In 1901 Hartley collected and reported forty-six such operations for exstrophy of the bladder with seven deaths, and not all of these from infection, which is most to be feared from the ascending involvement of the ureters and kidneys. Two or three of them died from surgical shock, probably the result of poor technic. I was much interested in the report of a case by Doctor Eaton of San Francisco. About a year ago he transplanted the right ureter into the appendix and got a favorable result. Last year in one exstrophy case I proposed to transplant the right ureter into the appendix and not do anything with the left for a time until the first operation was found to be successful. If not possible to secure a good result with the first ureter, then one would have the other ureter no worse off than before. If the first attempt was successful the other ureter could be transplanted into the bowel at a subsequent operation. In this way one might work with a little more security and be sure of one kidney's working. A case has been reported where the operator, not only transplanted the trigonum, but a large share of the posterior wall of the bladder into the sigmoid flexure with a successful result. I have not had time to look up the literature of more recent cases, but I have no doubt that many cases of exstrophy have been operated upon and reported since Hartley's paper in 1901.

DOCTOR GEORGE KAMPERMAN: I think one thing should be remembered in the treatment of this patient. The operation should be such that the results shall not be upset or spoiled by future pregnancies. There is no reason why this patient should not become pregnant again and we would have to bear this in mind when operating to cure the exstrophy. I imagine the ureter could be well transplanted and not give trouble during future pregnancies or confinements, but probably some trouble would arise during the pregnancy if a plastic operation were performed on the abdominal wall.

DOCTOR REUBEN PETERSON: The patient, whose case has been reported by Doctor Schmidt, entered the Gynecologic service during the vacation, so I did not have an opportunity of examining her. Still, the case has interested me for two reasons, first, because of the experimental work bearing directly upon this subject, carried on by me some ten years ago; second, because the woman in this case, in spite of the malformations of exstrophy of the bladder and split pelvis, had given birth to two children. This latter fact seemed to me to be of especial interest and led me to suggest to Doctor Schmidt that he report the

case and look up the literature of pregnancy and parturition in women with exstrophy of the bladder.

It must be borne in mind that patients with exstrophy are apt to die early from ureteral infection. Very few of them live to middle age, since in one way or another the exposed ureters become infected with resulting fatal pyelonephritis.

As regards operation for the relief of these unfortunates, it may be said that plastic operations on the whole have proved unsatisfactory. Failure is due to infection of the line of union by the decomposing urine. On the other hand Maydl's operation, consisting of the transplantation of the ureters with the surrounding trigonum into the bowel has proved highly satisfactory. As Doctor Loree has told you, Hartley has been able to collect forty-six cases with seven deaths, the latter not being due to ascending ureteral infection but to other causes. This was because the uninterfered-with ureteral openings were transplanted. I think I conclusively showed in my experimental work that pyelonephritis inevitably follows the transplantation of the severed ureter into the bowel. In dogs and in human beings the infection may be of such a nature that it may be recovered from for the time being. Usually, however, sooner or later the patient succumbs. Not so, where the ureter is transplanted with the trigonum. Here the results are very good, not only in human beings but, as I showed in my experiments, in dogs as well.

DOCTOR SCHMIDT (closing the discussion): The cases of females with exstrophy of the bladder in the literature are reported from the surgical standpoint; pregnancy is merely mentioned incidentally. I think if I go over the literature very carefully I may find some more cases, but as far as I know now those are the only ones that have been reported. The patient did not want the operation unless she could be sure that she could get relief from her condition.

REPORTS OF CASES.

A REPORT OF TWO CASES OF ACIDOSIS; ONE WITH AUTOPSY.

DOCTOR WARD F. SEELEY read a paper bearing this title. (See page 366.)

DISCUSSION.

DOCTOR LUTHER F. WARREN: To realize that such a condition is a definite entity all one needs to do is to read the literature of the past two years and see what Folin, Edsall, Joslin, Ewing, Hale and others have written on this subject. True it is that most cases of acidosis are typically found in diabetes, but there are a great many scattered cases of acidosis developing primarily and not associated with glycosuria. Gundrman, of the Johns Hopkins, last year compiled a series in which he found thirty per cent of the postoperative cases showing acetone in the urine. Thinking that such a condition might be due to ether, he noted the findings following chloroform, nitrous oxide, ethyl chloride, et cetera, and found that these bodies appear in about the same kind of cases as those following ether. In his cases of severe vomiting, after the third day, he invariably found diacetic acid and always found acetone in increased amounts. Wallace, of London, states that these cases have a definite symptom complex as follows:

When the patient continues to vomit after the third day and there is a rise in pulse rate, not due to a complication, he becomes anxious, nervous and restless. These bodies are usually found in conditions with symptoms from the acid intoxication. Why these bodies appear is not definitely settled. However, Joslin's work throws some light upon it. He starved some medical students at Harvard and found these acid bodies appearing in the urine. In all probability this is one of the reasons why they are present.

DOCTOR ALBION W. HEWLETT: The picture in the first of these cases was a striking one. She vomited continually and without any apparent cause and in addition there was great pain on swallowing. The latter was attributed to an esophagitis but at autopsy no cause for it was found. Too much importance should not be placed upon the appearance of acetone in the urine after operation as it occurs not infrequently at such times and may occur in any person who is suddenly starved after being on a full diet. When diacetic acid also appears the condition is more serious. Such cases as these occur more frequently after chloroform and have been spoken of as late chloroform poisoning but they may also occur after ether. The character of the second case was more doubtful for the reason that less of the acetone bodies was found and also because she had hyperthyroidism which might account for many of her symptoms.

ORIGINAL ABSTRACTS.

MEDICINE.

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DIGITALIS.

THE effect of digitalis and related drugs upon the heart and the circulation has been exhaustively studied by Mackenzie and his school and the results of these studies are summarized and discussed in *Heart*, 1911, II, 273. The British tincture of digitalis formed the basis of the study, although other preparations of digitalis and of related drugs were used. The drugs were pushed until some definite result was obtained either upon the heart rate or upon the stomach (nausea, vomiting). When the tincture was given in doses of about one drachm a day, nausea usually occurred after five to eight days. Mackenzie has never seen dangerous symptoms produced by such doses. Careful records were kept of the effects upon the general condition of the patient, the digestive and nervous symptoms, the urinary flow, the blood pressure and the heart rate and rhythm. The most striking digitalis effects, so far as the heart's rate was concerned, were obtained on cases of auricular fibrillation. Even large doses of

digitalis up to those producing nausea rarely slowed the heart rate when the rhythm was of a normal character. In the latter group of cases also the improvement in the general condition was usually much less marked than in those with auricular fibrillation. The first digestive disturbances noted were loss of appetite and nausea, which were followed by vomiting if the drug was continued. Accompanying the nausea there was often headache and general malaise. *Strophanthus* and squills produced diarrhea much more readily than digitalis. Except in one case no appreciable effect upon the blood pressure was observed even though the drug was pushed to nausea.

As has been said the most striking effects of digitalis medication were obtained on patients who showed auricular fibrillation. The clinical signs whereby we recognize this condition are: (1) The irregularity of the heart is usually continuous and is of a disorderly character, except in certain cases of slow heart action. (2) All signs of normal auricular contractions disappear—(a) in mitral stenosis the presystolic accentuation of the murmur attributed to auricular systole disappears, (b) no auricular waves appear in graphic records of the jugular pulse. (3) The fibrillation may be indicated on jugular tracings by small waves and are well marked on electrocardiographic tracings. It is in auricular fibrillation that marked slowing of the heart with great improvement is most liable to occur after digitalis. In a patient with temporary fibrillation digitalis caused slowing but was ineffective during the normal rhythm. The cases of fibrillation most susceptible to digitalis are those with a previous history of rheumatism especially in young individuals. In some cases the slowing is accompanied by a peculiar coupling of the rhythm due to ventricular extrasystoles. Occasionally auricular fibrillation may be produced by digitalis and disappear when the digitalis is stopped.

Digitalis increases the sinus irregularities of the heart. It may cause ventricular extrasystoles. Rarely it causes the *pulsus alternans*. The most characteristic irregularity produced by digitalis is partial heart block in which occasional ventricular contractions fail to occur after auricular contractions. The presence of a partial heart block is not an absolute contraindication to digitalis for some patients improve in spite of the partial block. A complete block is no contraindication, for it has not been definitely proven that digitalis can influence the automatic ventricular rate.

In tachycardias due to an increased number of stimuli at the normal site of origin, as in fever, alcoholism, and toxemias, digitalis is usually without effect upon the heart rate. Tachycardias due to auricular fibrillation are very susceptible to digitalis.

No definite change in the size of the heart as outlined by percussion could be made out even though the patient showed great general improvement.

The slowing of the heart under digitalis which occurred in fibrillation of the auricle as well as the slowing due to partial heart block could usually be removed by an injection of atropin, thus indicating that these effects were usually produced by stimulation of the vagus nerve by the digitalis.

A. W. H.

GYNECOLOGY.

REUBEN PETERSON, A. B., M. D.

PROFESSOR OF OBSTETRICS AND GYNECOLOGY IN THE UNIVERSITY OF MICHIGAN.

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RADICAL EXTIRPATION OF THE CANCEROUS UTERUS.

TWEEDY (*The Journal of Obstetrics and Gynaecology of the British Empire*, Volume XIX, Number IV, 1911) writes of his experience and reports his results with Wertheim's operation for cancer of the uterus. He considers that the modesty of Wertheim's claims is what has given his operation popularity over those of others. Berkeley considers that the use of the clamp on the vagina is the distinctive feature of Wertheim's operation, but Tweedy considers that the clamps are not necessary, and in fact, cannot be applied during some operations for radical extirpation of the uterus.

The writer prefers the use of loose untied silk ligatures around the ureter in order to be able to dissect them from their course. He considers that the danger of disturbing the ureters from their beds has been much exaggerated and in the past has led to incompleteness of operation.

Tweedy finds that the bladder is easily separated from the cancerous uterus if it be free from inflammatory and malignant infiltration. He also finds that the bladder, rectum and ureters are wonderfully resistant to uterine cancer, and he has often been struck with the extent of the infiltration above and below the ureter without its actual involvement. If it is necessary to resect the ureter he considers it all important to suture the ureter and leave no tension on the organ. Rather than have tension on the ureter he would pull up the bladder, or suture the ureter into the bowel, and he suggests that perhaps the Fallopian tube might be utilized as a urine carrier in some cases.

To prevent a pelvic hematoma from collecting the writer uses a plug of gauze which he places in the subperitoneal space leading into the vagina. Although it is not necessary in all early cases, he finds it almost indispensable in the more advanced cases.

The writer's experience is similar to that of others in that suppuration of the abdominal wound occurs frequently. A prophylactic stitching of the peritoneum to the skin takes too much time and is questionable as to its efficacy, which statement also holds true for other devices used to prevent wound infection.

Cystitis occurred in six out of forty-nine cases but yielded to treatment easily. Bladder injury likewise was not uncommon, three injuries occurring at the time of operation, and six cases obtaining sloughs later.

The writer operates on many cases where there is fixation of the uterus, pain, purulent discharge, infiltration of broad ligaments and cachexia. Extreme obesity he considers a hindrance but not a contra-indication to the operation; even with involvement of the liver and other secondaries the writer considers it justifiable to remove a can-

cerous uterus to afford relief from pain and discharge. One would be inclined to question the justification of such operations. Tweedy apparently performs abdominal operations on incurable cases with the hope that the patient's pain may be relieved. The idea that it may be wrong to subject a patient to the anxiety of a major operation which cannot prolong life is considered to be mere sophistry and is dismissed without discussion.

The writer's primary mortality is eighteen and seven-tenths per cent for all cases. For carcinoma of the cervix his primary mortality is twenty-four and one-quarter per cent, while it is nine and one-tenth per cent for carcinoma of the fundus. Of ten cases of carcinoma of the fundus, who survived the operation, five have died of recurrences and four are known to be alive after periods of from one to four years. Of twenty-five patients with carcinoma of the cervix who survived the operation nine have died since, and nine are known to be alive and four of these have recurrence. The five patients alive and without recurrences have been operated from two to five years ago. Apparently the author has not been doing the operation longer than five years. Of his three cases operated five years ago, one is alive without recurrence.

In four cases neither ureter could be isolated, and in six cases only the right ureter could be isolated because of the extensive involvement. This in itself proves that the operation was performed on inoperable cases.

G. K.

OBSTETRICS.

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PLACENTAL ANAPHYLAXIS.

JOHNSTON (*The Journal of Obstetrics and Gynaecology of the British Empire*, Volume XIX, Number II) reports the results of his experiments on placental anaphylaxis. Anaphylaxis is the antithesis of immunity. Certain substances, complex protein compounds, when introduced in small nontoxic doses into an organism, have the property of producing excessive sensitiveness to subsequent very small doses of the same substance. This phenomenon explains the unpleasant results sometimes obtained after the repeated administration of anti-toxic serums.

The writer's experiments were made in five groups. In the first group an extract of fresh placenta from an eclamptic patient was obtained and injected intravenously into rabbits. A subsequent injection eleven days later produced no symptoms except slight dyspnea and uneasiness, which lasted only a few minutes.

In the second group similar experiments using normal healthy placenta juice were carried out on twelve rabbits. After the second injection seven rabbits showed slight symptoms, dyspnea, blanching of the ears, loss of muscular tone, and subnormal temperature. In an

eighth case there were slight convulsions and profuse liquid diarrhea in addition to the other symptoms.

In the third group, pregnant animals were injected with the juice of the placenta from another of the same species. Two animals showed no reaction after the second injection and only one rabbit showed slight dyspnea.

In the next two groups a suspension of powdered placenta in normal salt solution was used. Liepmann believed that the eclamptic toxin is in the cell and might not be found in the juice. The suspension was injected intraperitoneally and two animals died of peritonitis. But of those that survived there was not the slightest appearance of any anaphylactic symptoms.

Johnstone summarizes as follows: "Anaphylactic symptoms were obtained by the use of normal human placenta juice in eight out of twelve rabbits. This indicates that human placenta juice contains some complex protein body which is capable of acting as a toxin for other animals.

"No results followed the use of eclamptic placenta juice. So far as it goes, this may be taken to lend support to the view that the toxic element had passed out of the placenta into the patient's body.

"No results followed the use of extracts of animals of the same species. No results followed the use of a powder of placenta.

"The results of these experiments appear to support the view that there is no evidence of anything of the nature of anaphylaxis, so far as we at present understand that subject, in the common manifestations of the toxemia of pregnancy."

G. K.

PEDIATRICS.

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SHOULD ECLAMPTIC MOTHERS NURSE THEIR NEW-BORN?

GODDALL (*Archives of Pediatrics*, Volume XXVIII, Number I, page 13) describes in full three cases of healthy or seemingly healthy infants, born of eclamptic mothers who showed no symptoms of illness until the first copious nursing, when they suddenly died without apparent cause. Referring to the literature on this subject, it appears that such children have often been found to show signs of general intoxication, and in a large percentage the lesions were identical with those of eclamptic mothers who had succumbed to the disease. Children born of such mothers are far from being healthy. Those which survive and those which die in whom the urine is examined show signs of renal injury; therefore one must consider the vast majority of these children born of eclamptic mothers more or less

tainted with the same disease as the mother. Since the mother's blood is saturated with the poisons of metabolism to such a degree as to cause cerebral disturbances, culminating in eclamptic seizures, the secretion of the breast will be tainted with the same metabolic products. We may therefore assume that the toxins are eliminated in the milk, and it has been shown that the urine of eclamptic women is less toxic than their blood. By the analogy of drugs we have strong proof that the mother's milk can secrete a more concentrated toxin than that which circulates in her blood. Arsenic administered by the mouth to the mother is found to be ten times stronger in her milk than in her urine. The child, therefore, receives a larger dose of poison through the milk than it did through the placental circulation. When full diuresis and elimination occurs in the postpartum days, by the time the breasts begin to secrete actively there is a low grade of toxemia present, and the child may escape; but in cases where elimination fails, toxemia reaches its height during full lactation with fatal results. Eclamptic convulsions seldom, if ever, come in pregnant women without uterine contractions having set in. The toxin is thought to be of fetal origin. Therefore compression of the large uterine lymphatics and cavernous sinuses throws a large amount of toxins into the maternal circulation and this flooding of the organism with noxious products finds expression in eclamptic convulsions. In mothers who are toxemic and jaundiced it is advisable to feed artificially for quite a few days, and to have the breasts pumped dry once or twice after the maternal toxemia has improved and before the child is allowed to nurse. When the convulsions come on postpartum, the maternal elimination should be prolonged until she is freed from the greater part of her toxemia, and then the breasts should be emptied before allowing the child to nurse. Where albuminuria persists after gestation it is well to feed artificially throughout.

A. D. H.

EDITORIAL COMMENT.

THE 1911 ANNUAL MEETING OF THE MICHIGAN STATE MEDICAL SOCIETY.

THE forty-sixth annual meeting of the Michigan State Medical Society was held in Detroit, September 27 and 28, 1911. The general sessions and section meetings were all held in the new convention rooms of the Hotel Pontchartrain, so that the inclement weather interfered but little with the comfort of those in attendance.

There were three especially noteworthy features of the meeting. One of these was the substitution for the usual commercial exhibit of a scientific exhibit. The Detroit Clinical Laboratory, the Research Department of Parke, Davis & Company and the Marine Hospital Service were among those who contributed excellent displays with many interesting features. Not since the Petoskey meeting, in 1905, has there been such a commendable exhibit and numerous expressions of satisfaction with it were heard from those present. It seems to be the general opinion that the society should no longer continue the

tiresome commercial exhibit but should have, when possible, a display of more scientific interest.

A second feature was the opportunity afforded to many throughout the state, to see, for the first time, the magnificent new home of the Wayne County Medical Society. On the evening before the opening of the meeting a large number attended and enjoyed an informal reception at the building. It was a surprise to many to find such a commodious club and a library already containing over nine thousand volumes. In this connection it may be said that the Wayne Society will welcome as associate members the active members of the other societies of the state, and invite the profession to make the building their headquarters when visiting Detroit.

The third unusual feature of the meeting was the comparatively large number of guests from outside the state. Interesting papers were contributed to all of the sections by them.

The two principal addresses were delivered by the retiring president, Doctor Colonel B. Burr, of Flint, and by the guest of honor, Doctor Charles H. Mayo, of Rochester, Minnesota.

Doctor Burr, in reading on "Paranoia and Certain Paranoid Conditions in Their Relation to the Public and the Profession," touched upon the advance which has been made in the distinction of paranoia as a characteristic form of insanity. The public, and even the profession, have come to apply the term to cover a multitude of faults of disposition, eccentricities and temporary or permanent departures from conventional modes of thinking and acting. It has been far too often used as a cloak to shield the wrongdoer from punishment. Therefore it should be borne in mind by the profession that it is a distinct form of mental disease. The symptoms and stages were reviewed and contrasted with the paranoid form of dementia precox, as well as a paranoid condition caused by alcoholism. The paper is an important one and should be studied by every practitioner.

Doctor Mayo's address, on "Problems in the Diseases of the Thyroid," given without manuscript and illustrated with lantern slides, was a masterful summary, in a most comprehensible style, of the newer views concerning thyroid sufficiency and insufficiency. It contained numerous ideas new to many of those present. The more scientific aspects of the question were correlated so that practical applications in treatment were clearly brought out.

It would seem to the writer that the section programs were not up to the standard of former years, for there were not so many good papers as in the past. It is to be hoped that the change from a fall to a spring meeting, which takes place next year, will bring out papers more thoughtfully and better prepared. It should be the aim of the program committee to present papers the material of which is applicable to the everyday work of the practitioner. The questions which are constantly coming up in the course of routine work are never threadbare.

The social features of the meeting were elaborate and thoroughly

enjoyed. They included, besides the informal reception noted before, an entertainment and reception at the Pontchartrain on Wednesday evening, several small dinners, and an automobile ride and tea for the visiting ladies.

There was transacted little business of importance. The secretary's report showed the largest membership in the history of the society and the registration at this meeting was the largest on record.

The following officers were elected: President, Doctor D. Emmett Welsh, of Grand Rapids; vicepresidents, Doctors Guy L. Connor, of Detroit; Neil S. McDonald, of Hancock; George C. Hafford, of Albion, and George D. Carnes, of South Haven; delegate to the American Medical Association, Doctor Edward T. Abrams, of Dollar Bay; alternate delegate, Doctor Arthur D. Holmes, of Detroit.

B. R. S.

THE SANITARY RECORD OF THE MANEUVER DIVISION OF THE REGULAR ARMY AT TEXAS.

No one can read the sanitary record of the army in Texas, as set forth by Lieutenant-Colonel J. R. Kean in a recent number of the *Journal of the American Medical Association* without a feeling of pride at what has been accomplished by the Medical Corps of the Regular Army since the Spanish-American War. At that time it was a source of the greatest mortification to the American people that our boasted improvements in sanitary science since the Civil War availed but little when put to the test. Disease in every form proved far more disastrous to our troops than bullets. It was even claimed that if the Spaniards had only played a waiting game at Santiago and had not fallen victims to the American game of bluff, our army, weakened by disease, not only would not have carried the fortifications but would have been unable to even make the attempt.

When hundreds died of typhoid at the various camps, many came in for blame, from the Secretary of War, to the poor harassed doctors who were so bound about by red tape that even the simplest sanitary measures could not be effectually carried out. Then came the Russian-Japanese War, in which the efficiency of the despised yellow race in its medical army corps was shown to be the best the world has ever seen. In that war the decisions of the army doctors regarding everything sanitary and medical were final, their authority being supreme. If they said that a camp was to be located at a certain place, it was so placed and no red tape emanating from those higher up substituted an unsanitary site elsewhere.

The reorganization of our Army Medical Corps was inevitable once the eyes of the public became opened to the faults in the system. The results of this reorganization is set forth clearly by the writer of the above article. The lesson was a bitter one but the thousands of lives sacrificed to inefficiency may not have been entirely in vain, if only in this way could better results be obtained. For it is appalling to consider what would have happened in case of a greater conflict prosecuted under the old system.

Doctor Kean shows in two tables the vast improvements following scientific sanitary regulations. In the first table he shows that there were two hundred eighty-one deaths from all diseases in the Second Division of the Seventh Army Corps assembled at Jacksonville, Florida, in 1898, approximating ten thousand men; while under the improved methods employed in the Maneuver Division at San Antonio, Texas, in 1911, there were only eleven deaths among twelve thousand soldiers.

The showing is even better if typhoid alone be considered. The Division of 1898 had two thousand six hundred ninety-three certain and probable cases of typhoid fever with two hundred forty-eight deaths, while the 1911 Division had one case and no death.

This remarkable showing as regards typhoid fever can only be explained by compulsory antityphoid inoculations carried out as rapidly as the prophylactic culture could be supplied from the laboratory of the Army Medical School. There was practically no puncture infection and in no case were the inoculations followed by serious results.

The Army and all connected with it should be proud of such results and it should be followed by generous appropriations for the arm of the service which has accomplished so much in thirteen years.

DOCTOR WILEY EXONERATED.

AFTER a thorough examination of the charges brought against Doctor H. W. Wiley, chief of the bureau of chemistry, President Taft in a written statement has not only exonerated him but has given the highest praise to the work of the chief chemist of the government. The charge against Doctor Wiley was to the effect that he had conspired to pay Doctor H. H. Rusby, of New York, pharmacognosist of the bureau, a salary of one thousand six hundred dollars a year with the understanding that the latter was to do only work enough to secure this amount at the rate of twenty dollars a day. This was a violation of the act of Congress of March 15, 1898, which declared that no classified scientific investigator should receive more than nine dollars a day. The board which investigated these charges recommended that Doctor Wiley be allowed to resign, Doctor Rusby be dismissed, and that a number of others said to be involved in the affair either reduced or allowed to leave the service. President Taft overrules these recommendations for a number of reasons which he sets forth at considerable length, chief and foremost among them being that the accused persons had not been given a fair chance to defend themselves.

The medical profession will rejoice in Doctor Wiley's vindication for more reasons than one. While it is easy in these days of muck-raking to suspect anybody and everybody of dishonesty, it can hardly be denied that there has been, and still is, strong opposition to the enforcement of the national pure food law. It is a well known fact that unscrupulous manufacturers are perfectly willing to sacrifice the health of thousands, if thereby their pecuniary returns can be increased. Physicians know only too well

the frauds perpetrated by patent medicine concerns. They also know the methods employed by this class of manufacturers to evade the law. The medical profession is ever ready to stand by such men as Doctor Wiley and Doctor W. A. Evans, formerly Commissioner of Health of Chicago. Such men cannot be intimidated. They have the courage of their convictions and are fighters every inch of them. There are more than enough weak-kneed people in this world. We should be only too ready to give our allegiance to those of another type who will fight our battles for us without faltering.

MEDICAL NEWS.

HYGIENIC EDUCATION ABOARD AN EXHIBITION CAR.

THE Michigan State Board of Health has adopted the policy of making its chief work educational in character. It considers its greatest function to be, to extend knowledge regarding preventive medicine rather than the extensive compilation of figures which only comparatively few people read, and by which still fewer profit. Several measures for accomplishing this purpose have been instituted, and the results are very apparent. The Secretary sends to each newspaper in the state a weekly bulletin, dealing in a general way with the most important phases of timely health conditions. The reports show that more than half of the newspapers use these bulletins regularly, either printing them entirely, or by abstract, while many others use them when they have any definite local bearing. The pamphlet entitled, "What About the Babies?" has developed a widespread interest in the care of babies, particularly in reference to the proper care of milk during summer months.

During the coming winter, there will be held ten sanitary conventions in various cities of the state, which will certainly do much good toward establishing a more thorough system of sanitation.

One of the most efficient factors in their plan of disseminating such knowledge, is the exhibition car. This car is fully equipped with charts, models, pamphlets, et cetera, and has been very enthusiastically received wherever it has been. During August it was exhibited in sixty-six towns in the southern part of the state. The daytime exhibits were frequently supplemented with lantern slide lectures by the Secretary in the evening.

During the Detroit fair, the car had a place on the grounds, and the number of people who examined the exhibit was only limited by the capacity of the car, and the length of time it was open. It was usually crowded from 9 o'clock in the morning till dark, and it was not unusual to see a hundred people waiting a chance to gain admittance. Continuous lectures and demonstrations were going on inside the car, which, together with the extensive display of charts and models, impressed the people that the State Health Department is really more than a bureau for collecting and reporting statistics. From Detroit the car was taken to the Hillsdale fair, where the exhibit became a center of attraction,

and caused much interest. Besides these, smaller exhibits have been sent out to a great many other fairs and conventions in the state. The demand for exhibits, though, have outreached the Department's ability to supply, coming as they do within a short space of time.

The railroad companies have assisted much in this work. The car used during August was furnished free by the Lake Shore and Michigan Southern, while the one used at the fairs was furnished by the Michigan Central. Transportation was also free over the Lake Shore and Michigan Southern, Michigan Central, Cincinnati Northern, and Grand Trunk lines.

THE CONTROL OF VENEREAL DISEASES.

THE Committee of the American Medical Association on the Control of Venereal Diseases by a Municipality made a report in the section of preventive medicine at the last meeting of the American Medical Association, held in Los Angeles in June last. Doctors Guy L. Kiefer, Health Officer of Detroit and Chairman of the Committee, and Doctor George W. Kober, of Washington, District of Columbia, the other member of the Committee, made the following recommendations:

- (1) The inauguration of a campaign of education, in cooperation with a society specially organized for that purpose.
- (2) The requiring of reporting of all cases of venereal disease by dispensaries, hospitals and juvenile courts.
- (3) The requiring of the reporting of all cases among prostitutes.
- (4) The establishment of special clinics under boards of health for the treatment and control of venereal diseases.
- (5) The enactment of a law requiring the reporting of all cases by physicians.
- (6) The establishment and maintenance by the municipality of hospitals of sufficient capacity to care for all highly infectious cases.
- (7) The establishment of laboratory facilities for diagnostic purposes, such as are had for other contagious diseases.
- (8) The amendment of all birth registration laws so that births are required to be reported within twenty-four hours.
- (9) The enactment of laws or regulations for the control of midwives and physicians who attend maternity cases.
- (10) The enactment of laws requiring the reporting of specifically infected eyes.

MINOR INTELLIGENCE.

THE next examination of embalmers will be held at Lansing, Michigan, November 15, 1911.

DOCTOR WARREN P. LOMBARD, professor of physiology at the University of Michigan, has just returned from Europe where he spent a year in study and travel.

DOCTOR R. BISHOP CANFIELD and Doctor Carl D. Camp, members of the medical faculty of the University of Michigan, have returned from Europe where they spent their summer vacations.

AT the annual meeting of the Clinical Society of the University of Michigan, held October 11, Doctor Albion Walter Hewlett was elected president, Doctor Cyrenus G. Darling vicepresident, and Doctor Reuben Peterson, secretary-treasurer.

AT the recent annual meeting of the Wayne County Medical Society the following officers for the year 1911-12 were elected: President, Doctor Henry O. Walker; vicepresident, Doctor Benjamin R. Schenck; secretary-treasurer, Doctor Robert C. Jamieson.

THE library of the Wayne County Medical Society is now in a flourishing condition. There are over nine thousand volumes on the shelves, besides three thousand duplicates. A trained librarian is always at hand ready to assist the members of the society in their literary work.

ALTHOUGH a new wing has recently been added to Grace hospital, of Detroit, it is already filled to overflowing. The trustees, in recognition of the growing demand for even greater hospital facilities for Detroit, are already planning to double the size of the present institution.

THE many friends of Doctor Frank Smithies, of Ann Arbor, will rejoice in his complete recovery from a recent illness. He has just accepted a very flattering offer to take charge of the medical work in connection with gastrointestinal diseases at the Doctors Mayo Clinic in Rochester, Minnesota.

THE Secretary of the Michigan State Board of Health appointed a delegate to the meeting of the Association of Railway Surgeons, which was held in Chicago, October 18 and 19. He has also appointed one to attend the meeting of the American Public Health Association, at Havana, December 4 to 9, 1911.

ACCORDING to the laws of the State of Michigan, it is illegal for a registrar to issue a burial or removal permit on any certificate signed by a chiropractic physician. Likewise, midwives, not being recognized under the medical act, have no professional or legal status in Michigan and have no right to sign a certificate of death.

IN order to ascertain the cause of pellagra, the United States Marine Service will open a pellagra laboratory at Savannah, Georgia. Provision for this laboratory was recently made by a special act of Congress, pellagra patients being admitted into the marine hospital for purposes of study and treatment. The work will be under the charge of Doctor C. H. Lavender.

THE second annual session of the Clinical Congress of Surgeons will be held in Philadelphia, November 7 to 16 next. The program of the Congress includes clinics by the leading surgeons of Philadelphia in all the principal hospitals each day of the session. There will also be seven evening literary meetings at which eminent surgeons from other cities will read papers and take part in the discussions.

WITH the approval of Governor Osborn, the Michigan State Board of Health authorized the Secretary to bring about an investigation of the occupational conditions in Michigan, with a view to the prevention of unnecessary loss of life and health from conditions that can be remedied. This work is to have the immediate attention of the Department, and a thorough investigation will be made of all industrial conditions that affect health and life.

FUNERAL services for Doctor Herman Kiefer, the pioneer physician of Detroit, were held at the home of his son-in-law, Doctor Carl Bonning, October 13, 1911. Doctor J. B. Kennedy of Detroit, a life-long friend of the deceased, gave an address in which he paid tribute to Doctor Kiefer's worth as a physician and citizen. In view of Doctor Kiefer's services to the University of Michigan while regent, an appreciation of his life and character will appear in an early issue of this journal.

DEAN VICTOR C. VAUGHAN, of the University of Michigan medical department, returned October 10 from a summer spent abroad. In company with Doctor Frederick G. Novy, of the medical faculty, he spent several weeks at the Dresden Medical Exposition, where there appeared an exhibit from the hygienic laboratory of the University. The German government expended more than a million dollars on this exposition with the purpose of graphically depicting the modern methods employed in preventive medicine.

THE Michigan State Board of Health has employed Miss Adele McKinnie, an investigator in eugenics from the Eugenic Record Office, Cold Springs Harbor, Long Island, New York, as a special medical inspector, to investigate during the next six months the condition and extent of feeble-mindedness and mental deficiency in Michigan. Miss McKinnie's work will begin at the State Home for the Feeble-Minded and Epileptic, at Lapeer, Michigan, under the immediate direction of Doctor George S. Chamberlain, Medical Superintendent of that institution.

By a series of experiments, Professor J. T. Millard of the Kansas State Agricultural College has shown that flour packed in sacks of forty-eight pounds each and kept six months in a room of ordinary living temperature will shrink not more than twelve ounces in weight. He was thus able to controvert the assertion of the millers that such a package of flour loses from two to four pounds under similar conditions. As a result of Professor Millard's testimony, the Kansas State Board of Health has won its four years' fight against short weights by the millers.

ACCORDING to John Burns in the October number of the *Canada Lancet*, consumption will cease to exist in twenty or twenty-five years. It will be a memory of the past just as typhus, leprosy and plague are now. He quotes the following figures to fortify his opinion. The decrease in England and Wales during the past ten years has been nineteen per cent; Scotland twenty-four per cent; Ireland twenty-four per cent; Germany eighteen per cent; London thirty per cent; Berlin twenty-four per cent, and Paris three per cent.

DOCTOR WILLIAM A. EVANS, formerly Commissioner of Health of Chicago, announces through circular letters to members of the medical profession, that he has been placed in charge of the Health Department of the *Chicago Tribune*. The idea of this new departure is to have the department in charge of an expert competent to place before the public correct information on public and private hygiene. Thereby, health departments will be helped to secure measures calculated to be of public benefit and the people will be taught what to do and what not to do if they are to escape preventable illness.

DOCTOR ALEXANDER HUGH FERGUSON, one of the leading surgeons of America, died Friday, October 20, 1911, from blood poisoning caused by a carbuncle. He was born in Ontario county, Ontario, in 1853, and after a phenomenally successful career as a surgeon in Winnipeg, Canada, he removed to Chicago in 1894, accepting the professorship of surgery in the Chicago Post-Graduate Medical School. Some years later he was appointed professor of surgery at the College of Physicians and Surgeons, Chicago. He was surgeon-in-chief of the Chicago hospital and the Cook County hospital for the insane. In 1910 he was elected president of the Chicago Medical Society.

THE American Proctologic Society elected the following officers at its thirteenth annual meeting, held at Los Angeles, California, June 26 and 27, 1911: President, Doctor John L. Jelks, Memphis, Tennessee; vicepresident, Doctor Alfred J. Zobel, San Francisco, California; secretary-treasurer, Doctor Lewis H. Adler, Jr., Philadelphia, Pennsylvania. Executive council: Doctor George J. Cook, Indianapolis, Indiana, Chairman; John L. Jelks, Memphis, Tennessee; Dwight H. Murray, Syracuse, New York; Lewis H. Adler, Jr., Philadelphia, Pennsylvania. The place of meeting for 1912 will be at Atlantic City, New Jersey, the exact date and headquarters to be announced later. The following were elected Associate Fellows of the Society: Doctors Arthur F. Holding, 98 Chestnut street, Albany, New York; Ralph W. Jackson, Fall River, Massachusetts; Emmett H. Terrell, 304 East Grace street, Richmond, Virginia.

DOCTOR OVIDUS ARTHUR GRIFFIN, of Ann Arbor, Michigan, died of cerebrospinal meningitis, October 27, 1911, after an illness of less than a week. Doctor Griffin was thirty-nine years old and was born in Fayette, Ohio. He was graduated at the State Normal School at Fayette, acquiring a B. S. degree before entering upon his medical studies at Michigan. He was graduated from the medical department of the University of Michigan, in 1899. For three years after graduation he was first assistant to Doctor Flemming Carrow, professor of ophthalmology in the University of Michigan. During this time he was also demonstrator of ophthalmic and aural surgery, clinical ophthalmology and otology in the University. For ten years he has practiced his specialty in Ann Arbor and has established an enviable reputation as a capable man in his special field of work. Besides being a member of the local, state and national societies, Doctor Griffin was a member of the American Academy of Ophthalmology and Otolaryngology.

RECENT PUBLICATIONS.

REVIEWS.

VAGINAL CELIOTOMY.*

THIS is a new book on an old subject, but the way in which the subject is treated is entirely new. No other book on this phase of surgery has ever been published. The author has clasified the various operations which can be performed via the vagina and the description of all of these make a good-sized volume.

The consideration of posterior vaginal celiotomy fills about fifty pages of the volume. The technic is described and illustrated by fifteen well chosen drawings. The author finds the operation of great value for exploration to make a differential diagnosis. He finds that certain lesions are not recognized by vaginal examination, and the posterior incision will enable a more thorough examination of the pelvic organs. The operation is serviceable in freeing adhesions, replacing an incarcerated uterus, for removing an ovarian cyst, for drainage, and for pelvic abscess.

Anterior vaginal celiotomy and its modifications are important operations and two hundred thirty pages are occupied by their consideration, and seventy-eight full page illustrations accompany the text. Several pages of historic review showing the development of the operation are very interesting. The technic is clearly described, the operation being divided into three steps: (1) Separation of bladder from uterus and vagina; (2) opening of the peritoneum; and (3) delivery of the uterus. The operation is specially indicated in treating cystocele, and in case of descent and prolapse of the uterus. It can also be serviceable for exploration, for producing sterility by excising part of tubes, for conservative work on the appendages, for removal of small cystic tumors of ovary, for fibroids of the uterus to be treated by myomectomy, and for treatment of retroversion by vaginal suspension and fixation. The choice of vaginal operation is debatable in certain cases of ectopic gestation, and for certain tumors of the uterus or appendages. The fact that the writer is not unnecessarily enthusiastic over the operation is shown by the long list of contraindications to the operation.

The operation for cystocele and prolapse of the uterus are admirably described and illustrated, one hundred twenty-two pages being occupied by the discussion. The Schauta-Wertheim operation is the operation of choice. No mention is made of the work of Watkins along this line, and the Watkins method of separating the bladder from the vagina is not mentioned. Vaginal hysterectomy and myomectomy are likewise well described and illustrated. A chapter on vaginal Cesarean section concludes the volume.

There are many things well worthy of notice in this volume. This is the first book to appear in which the entire volume is devoted to a consideration of vaginal operations. The complete classification given will make the book invaluable for anyone contemplating doing vaginal surgery.

The drawings are superb, and the series of beautiful plates are well worthy careful study. The artist has done excellent work, which serves to beautify and increase the usefulness of the volume.

Even the quality of paper is deserving of mention. The publishers have done their part in the production of the volume and are to be congratulated on the end result.

This book can hardly be praised too highly. It fills a place not occupied by any other text. The author, artist, and publishers together have given a good piece of work to the profession. We can recommend the volume without hesitation.

*By S. Wyllis Bandler, M.D., Fellow of the American Association of Obstetricians and Gynecologists; Adjunct Professor of Diseases of Women in the New York Post-Graduate Medical School and Hospital; Associate Attending Gynecologist to the Beth Israel Hospital, New York City. With 148 original illustrations. Philadelphia and London: W. B. Saunders Company, 1911.

CASE HISTORIES IN PEDIATRICS.*

THIS is one more volume in the well-known "case history" series begun by Doctor Richard C. Cabot. As all who know the author would expect, the work is conscientiously well done. One hundred clinical cases are described and analyzed, with prognosis and treatment carefully worked out. The result is a valuable clinical treatise which will introduce the student most realistically to the difficulties of practice, and which will afford any practitioner valuable returns for the time spent in reading the book. We commend it most cordially.

*A Collection of Histories of Actual Patients selected to illustrate the Diagnosis, Prognosis and Treatment of the Most Important Diseases of Infancy and Childhood. By John Lovett Morse, A. M., M. D., Assistant Professor of Pediatrics in the Harvard Medical School; Associate Visiting Physician at the Infants' Hospital, and at the Children's Hospital, Boston. 314 pages, illustrated. Price \$3.00. Boston: W. M. Leonard, 1911.

A PRACTICAL TREATISE ON OPHTHALMOLOGY.*

THIS excellent work includes chapters on the anatomy of the eye, physiology of vision, in addition to those on diseases of the eye. It also contains a chapter on bacteriology and a classification of the micro-organisms, in connection with affections of the conjunctiva, the cornea, and the uveal tract. Special attention has been given to the operations which have proven most beneficial in the experience of the author.

The most modern theories of color perception and color blindness are presented, and the chapters on therapeutics are particularly full. The chapter on the relation of general diseases to diseases of the eye is most practical.

The work is designed for students as well as a reference book for those who are especially interested in this branch of medicine. It is well arranged and is a great acquisition to the textbook field of ophthalmology.

W. R. P.

*By L. Webster Fox, M. D., LL. D., Published by D. Appleton & Company, New York.

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ORIGINAL ARTICLES.

MEMOIRS.

THEORIES OF HEREDITY.*

RALPH H. SPENCER, M. D.
GRAND RAPIDS, MICHIGAN.

HEREDITY has been variously defined. Herbert Spencer described it as "the capacity of every plant and animal to produce other individuals of a like kind." Wiesmann follows Spencer very closely. According to him "the word heredity in its common acceptance means that property of an organism by which its peculiar nature is transmitted to its descendants."

The science of heredity is the science which deals with the organic relationship of progenitors with descendants.

The systematic study of heredity is of very recent origin. In effect it dates from the publication of Darwin's great work, "The Origin of Species." The work on heredity has been done chiefly by zoologists and botanists. Heredity concerns medical men more nearly than any other body of scientific workers.

Francis Galton, the English scientist, was born in 1822. He was educated as a physician but soon turned his attention to biology and anthropology, accomplishing some of his best work as late as 1901, when he received the Huxley medal and the following year the Darwin medal for original research in his special line of work. He died in April of this year.

Sometime between 1855 and 1865 George Johann Mendel, an Augustinian monk in the small Austrian village of Brunn, carried on in the gardens of his cloister pedigree cultures of peas and some other plants in which he obtained data that he set forth, together with his interpretation of their significance, before meetings of the Natural History Society of Brunn. From the authors above mentioned I have drawn largely for the material which appears in this paper.

*Read before the Kent County Medical Society, October 11, 1911.

Galton's law of ancestral inheritance may be stated in a few words. I quote from his memoirs entitled "The Average Contribution of Each Several Ancestor to the Total Heritage of the Offspring," published in 1897: "From a study of a carefully kept pedigree book of the kennels of the Basset Hounds Club, with records extending through twenty-two years and a study of inheritance in the British Peerage made possible by the complete genealogic records kept for these families, together with a consideration of various other less detailed but at least helpful records of inheritance, Galton formulated the statement that any organism of bisexual parentage derives one-half its inherited qualities from its parents (one-fourth from each parent), one-fourth from its grandparents, one-eighth from its great grandparents, and so on."

We must learn again the old proverbs, "Blood will tell;" "Like begets like;" "You cannot make a silken purse out of a sow's ear." Is there wisdom for our generation in the two hundred fifty year old saying of Sir Thomas Brown, quoted in a modern book on heredity? "Bless not thyself that thou wert born in Athens; but among the multiplied acknowledgments, lift up one hand to heaven that thou wert born of honest parents, that modesty, humility, and veracity lay in the same egg, and came into the world with thee."

The child, we are told, is not so much produced by his parent as by the common stock of which they and he are alike offspring. These common elements which make up the heredity are now believed not to be modified by the life of the individual; that is to say, individual life may be profoundly modified by environmental influences, but these changes do not, so far as positive proof has been adduced, affect the heredity of the offspring.

"The persistence of heredity* for which biologists contend is the more worthy of attention because it but fortifies the common sense view of the ages, which social workers have perhaps of late tended to ignore. It is true that mental and moral character, as well as physical character is inherited; that some children are born good, just as some are born strong. It is Heine's dictum that a man should be very careful in the selection of his parents. This might be confused with the saying of Oliver Wendell Holmes that the education of a child must begin with his grandfather. Modern biology gives more support to the first paradox than to the second. The selection of parents determines heredity. The education of grandparents influences the external heritage. Both are important, but if Heine's advice is followed, then it may not matter so much whether it is your own grandparents that are educated or some other grandparents whom you adopt. Foster homes of the second anterior generation cannot guard your heredity but they may be competent custodians of your external heritage."

HEREDITY AS A DETERMINING CAUSE OF DISEASE.

A determining cause of disease may be said to be one that casts the deciding vote in favor of having the disease. For example, if we fully admit that catching cold is caused by infection, we could still firmly hold that when we had sat for a half hour with wind from an

*Editorial in *Survey*, February 18, 1911.

open window on the back of the neck, and commence to sneeze, we have then and there the deciding cause. Our subject then considers whether heredity has not at times the deciding vote in favor of or against the having of a disease.

Owing to the lack of time, I will not weary you with research work, but will content myself with a surface consideration of the subject. Since statistics are capable of being used in opposite directions, we will commence with a consideration of heredity in general, in order to establish a presumption for it in disease.

That there is a transmission from parent to child is an undeniable fact. The great bulk of all that we are is surely inherited. If it were not so, then all were chance, and the successor of the apple tree might be the oak, and the child of the white man might be Indian in characteristics.

The common popular idea of proving heredity is to discover some peculiar trait, some trick of manner, or some facial marking, something like the existence of six toes or fingers, and point triumphantly to that as showing surely the marks of heredity. Truth lies, however, not in these exceptional things, but in the fact that the bulk of all that we are is inherited, and that it is only in the exceptional things that we differ. But with this truth fully admitted it at once appears that we have no simple and easy study. We instantly say no child is exactly like the parent. There are always variations. The child may inherit from each parent and may have any combination of the qualities of each. The child may be anywhere along intermediate lines.

We are linked to a long line of ancestors. It is one of the marvels of the world that a tiny, almost indivisible particle of matter can contain influences that go down through the ages, but it is even so, and the clear admission carries great influence into beliefs whose detailed proofs are hard to follow.

We are apt to think "we make ourselves," but after a man has lived his whole life out, if we, as observers have full knowledge, we can usually trace that he has followed broad inherited lines, even while he has seemingly had his own free will. One man has been always gloomy, and his neighbor always cheerful and optimistic, under practically the same surroundings. It seems easy to prove to the gloomy one that his "gloom" has no reason or sense, but after a few trials with only temporary effect, one has to retreat in defeat from such trials. The will can certainly do something, but seldom if ever, abolish wholly the inborn tendencies of the man's inheritance. It probably can do no more than keep them covered or in abeyance.

Our basis of assumption may be stated as follows:

- (1) Our whole endowment of form, strength, and passions, all our physical and mental characteristics are inherited.
- (2) This endowment includes things that seem to us voluntary and even the quality of the will itself.
- (3) Antenatal temporary causes acting upon the parent, such as profound sickness or gross inebriety in the parent have their decided effect on the child.

(4) The environment of the child can change the qualities endowed, but does not wholly uproot any of them (even as the winds and storms change the growing tree but superficially).

(5) Man's will similarly seems to have power to only modify and repress the endowed qualities of the person, not to uproot any of them.

Now, to apply these laws to the study of disease. We then ask first, are diseases inherited? For many years the phrase "inheriting the disease" has been followed by the explanation that it is only the predisposition that is inherited, not the disease. On the strength of this a great showing has been made in denying that diseases are inherited. As a very simple illustration, we will take an acute trouble, very prevalent at the present time, namely, tonsillitis. If we find that neither the parents nor any immediate relative have ever had tonsillitis, we feel confident that their child will not be subject to it when he catches cold, while perhaps in the family next door and where all the members have had the disease, we rather expect that soon or late the child will have it, as cold-catching is almost universal, the determining cause being the inherited constitution.

Can we give any good reason why one should not as probably inherit these tendencies as the tendencies toward physical or mental qualities?

Insanity is probably the most common disease recognized as strongly hereditary. It is usually stated that the tendency is toward a general neurotic defectiveness which may show either insanity, epilepsy, hysteria, or in one of the many forms of more partial nervous and mental defects.

Inebriety may be properly classified as having heredity as a strong factor in its development. If, for example, one or both parents be drunken at the moment of conception, although previously sane and sober, they may produce mentally defective, idiotic, or epileptic children. In cases of acute intoxication the poison permeates the germ cells and causes abnormal nutrition of the germ plasma, which may be of only transient duration. Strange as it may appear an alcoholic heritage is scarcely more likely to come from an habitual drunkard than from an abstainer who may be intoxicated at the moment of procreation for the first time in his life. The important bearing of these facts upon the progenitors at the moment of conception cannot be too strongly insisted upon.

Tuberculosis has had the next most prominent mention, after the discovery of Koch's bacillus. Then a wave of hopefulness, and a similar wave of fear of infection swept over the country. These waves may be still so strong as to make it unwise for me to express skepticism, but I have believed that both waves have gone far beyond what was reasonable, and must, after a time, recede.

Constitutional strength or weakness must be reckoned with, and these are made up of two factors—the inherited portion and the portion due to correct or incorrect mode of living. The study of the bacilli, while very valuable in a general way, seems to have brought little of general recognized practical value to date in prognosis or cure, and in diagnosis, it is often behindhand. On the other hand, the broad trend of the best living is coming to have the chief and only importance, acting as an aid to the endowed resistance.

I would not wish to be dogmatic, for it is hard to positively demonstrate the predominating power of either heredity or infection. However, if, as some have seemed to show, we all receive infection, then, with similar environment and infection, the deciding point would be placed back in the immunity or resisting power, which is largely inherited.

Speaking of the immunity to all diseases which seems to exist in many people, is such immunity all chance? We cannot believe this. I believe that it is a natural result of inheritance.

The laws of heredity, as discovered by the best authorities whom I have consulted, show that one cannot by mixing hybrids, produce a pure stock; that there will always be a majority of hybrids, a minority of pure stock, and another minority of bad and abnormal stock. In other words, if, for example, we mingle the Anglo-Saxon with, let us say the Spaniard, we never get a pure blended stock combining the best qualities of either, but we get a high bred stock, with a minority of individuals showing Anglo-Saxon traits in predominance, and another showing Latin traits.

Heredity, as I understand it, means that mode of biologic activity by reason of which one generation transmits its characteristics to another. It is one of the phases of that special activity of protoplasm, which used to be called "vital force." It is a kind of memory in the cells. By it, parents transmit to the offspring similar organs and functions. It is thought by some authorities that as man evolves and becomes more developed as regards his brain and intellect, he becomes less a slave to his inheritance, and the freedom of one's will is, in a sense, measured by the development of this intelligence. The influence of heredity, then, would lessen in the higher types of civilized man. There are, however, good authorities who assert that the mental and moral qualities are just as much a matter of stock and ancestry, as are the physical qualities.

Finally, I quote from Draper in an article in the *Medical Record*, February, 1910, as follows:

"It has been found in recent study of heredity and particularly in the study of the development of monstrosities and freaks of various kinds, and even of idiocy, that serious effects upon the children can be produced by noxious influences that affect the mother during the time that the child is developing; that mechanical influences, like shock, or chemical influences like poisons, and infections, or drunkenness in either parent, which get into the system at the time of pregnancy, may injure the vitality of the growing germ cells, and produce anomalies and monstrosities. By shaking and disturbing the contents of the fecundated egg in the chicken, all kinds of monstrous pullets can be brought forth."

To continue quoting from Draper, he says:

"First—Direct heredity is the most serious and often the only factor to be considered seriously. When a father or a mother has had a distinct psychosis, that was not acquired, which came on early in life, this person takes the very greatest risk in marrying. Direct heredity is of importance in the case of grandparents only in rare cases.

"Second.—If the heredity is not direct, that is to say, if it involves only an uncle or aunt or cousins, and exists only on one side, the danger of transmission is remote, and does not of itself justify a

refusal to the marriage.

"Third.—If there is no direct heredity, but there is a mental disease in the collateral on both sides, the danger of marriage is still only moderately great.

"Fourth.—When there is an abnormal character in a family but certain members have bred true for three generations, it will not reappear in that line."

Finally, I am pleased to agree with Draper that the human mind is capable of overcoming obstacles and dominating its handicaps. For it is certainly true that the man or woman, who is of powerful mould, and is captain of his soul, can greatly alter his ancestral pull.

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A REPORT OF A CASE OF TWIN PREGNANCY WITH SEVERE EDEMA OF THE VULVA AND LOWER EXTREMITIES DUE TO PRESSURE.*

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EDEMA occurring in pregnant women is by no means uncommon, and this case report is only justified because of the unusual findings and termination.

Mrs. N. P., a primipara, aged twenty-five, was admitted as an emergency case on the evening of October 6, 1911. Prior to her arrival her physician had telephoned that he was about to bring a case of eclampsia to the hospital, consequently everything was in readiness for the rapid evacuation of the uterus by vaginal Cesarean section. Upon arrival, the patient was examined by Doctor Peterson. She was not clear mentally. Her skin was pale and dry but she showed no edema of the upper part of the body. There were no convulsive movements or muscular twitchings; however, her physician reported an attack of a mild convulsive character, prior to her admittance. The patient did not complain of headache but seemed drowsy. The abdomen was markedly distended; palpation was not satisfactory because of rigidity and a distended bladder. However, a fetal heart could be heard on the right side, near the umbilicus, the rate being 144 beats per minute. The vulva was so edematous that the patient could not adduct the thighs, hence it was difficult to get her through the door-

*Read before the Clinical Society of the University of Michigan, November 1, 1907.

ways at the maternity ward (Figure I). The labia majora were so distended that they appeared shiny and glistening and seemed ready to burst. There was fluid exuding from the edematous labia. Both lower extremities also were greatly enlarged by edema. The patient's blood pressure taken with the Faught instrument was recorded as 138 millimeters of mercury. The patient had not voided urine in twenty-four hours and had not defecated for several days.

There was nothing important in the patient's history up to the time of pregnancy. Her pelvis was of normal size. She did not know the date of her last normal menstrual period, but evidently she was at full term. The early months of pregnancy were uneventful and only within

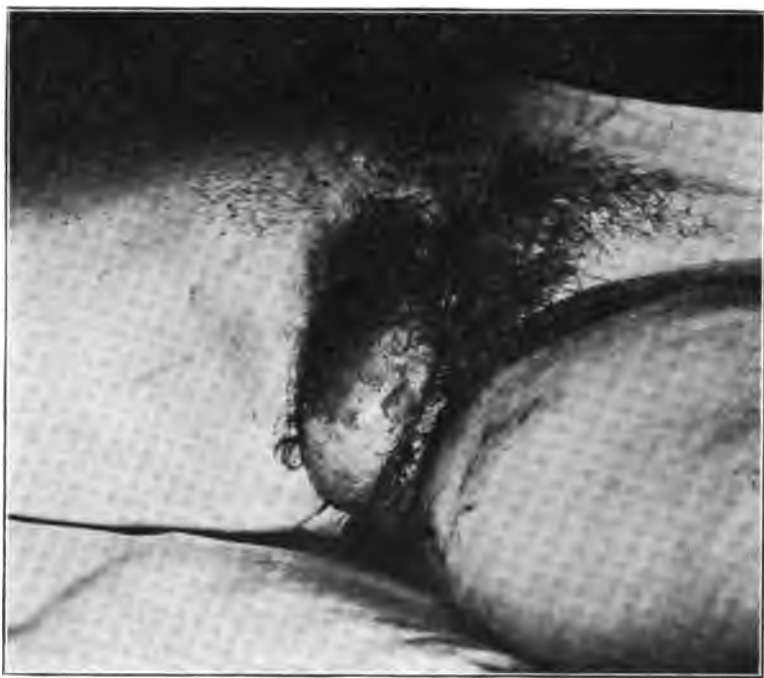


FIGURE I.—Edema of the Vulva in a Pregnant Patient.

a few weeks previous to her entrance into the hospital had she complained of slight edema, visual disturbances, backache, vomiting and marked constipation. Her temperature was 98.4° , pulse 112, respiration 26.

After a careful consideration of the case, it was decided that a vaginal Cesarean section would be almost impossible while such marked edema of the vulva existed. The patient was not in an extreme condition and an attempt to aid elimination was thought to be the best plan. An effort to empty the bladder with a catheter proved a failure because of the distortion of the parts.

The patient was surrounded with hot water bottles. An improvised electric stove was placed between her abducted thighs and the bed was covered with heavy blankets. She was given one-eighth grain of elaterium every hour for four hours.

At midnight, her skin felt moist and she voided a large amount of urine into the bed. About 1 A. M. the patient began to complain of severe pains in the lower lumbar region. These came at regular intervals of about five minutes. At 2 A. M. the patient was perspiring freely and soon after this voided urine again. At 3 A. M. the patient was having severe labor pains. Because of the edema it was impossible to prepare the patient for delivery. One hour later, meconium was noticed escaping from between the swollen labia. After a few pains the buttocks appeared at the vulva. The patient was given a little chloroform. No attempt was made to deliver her in the lateral position and she was delivered in the dorsal position. When the umbilicus had appeared at the vulva the cord was drawn down, the child's back being toward the patient's right side. The arms were drawn down, one finger was inserted into the child's mouth and the occiput was rotated under the pubic arch. The head was extracted by the Smellie-Veit method. After the cord was clamped and cut it was noticed that the fundus was unusually high. An examination disclosed the presence of another child. After a ten-minute interval there was a second gush of amniotic fluid and soon a second child presented at the vulva by the breech. Its position was S.L.P. This child was extracted in the same manner as the first, except that the occiput could not be rotated under the pubic arch so the chin was pulled down under the symphysis pubis and the occiput was delivered over the fourchette. The infants were easily resuscitated. They were females each weighing about six pounds. The placenta had two distinct amniotic sacs and a chorion between them. There was a small accessory lobe of placental tissue between the two larger placenta.

At the time of confinement there was a slight laceration of the left labium majus which caused the edema to disappear rapidly. On the second day of the puerperium the edema of the vulva had disappeared, the patient was voiding large amounts of urine showing but a trace of albumin; her bowel movements were frequent and she felt unusually well. On the fourteenth day the mother and children were discharged in excellent condition.

The case is interesting because of the rapid changes in the clinical picture. At 10:30 P. M. the patient was in a serious condition, characterized by very poor elimination of waste products, with extreme edema of the vulva and lower extremities. At 8 A. M. she was eliminating well and the edema had nearly disappeared. Pressure of the greatly enlarged uterus upon the pelvic brim and abdominal organs is the most plausible explanation of the condition. This pressure interfered with the return venous blood from the legs and vulva; it also interfered

with evacuation of the bladder and rectum and possibly by altering the kidney circulation caused albumin to appear in the urine.

The frequency of intoxication in cases of multiple pregnancy has been noted by many authors. Olshausen¹ and Cassamayor² state that twin pregnancy and hydramnios are predisposing factors in eclampsia. From six to eight per cent of their cases of eclampsia had twins as an etiologic factor.

Manton³ is of the opinion that the theory of eclampsia being due to toxic products originating in the fetus and altering metabolism is borne out by the fact that twins predispose to eclampsia and death of a fetus in utero diminishes the chances of it.

Peterson⁴, in a recent article upon vaginal Cesarean section, concludes that "multiple pregnancies are much more common among eclamptics. Twins are four and one-half and triplets ten and one-half times more frequent in this complication. Therefore multiple pregnancies probably act as a contributory cause of eclampsia."

Albuminuria occurring in cases of multiple pregnancy is probably the rule rather than the exception. Playfair⁵ explains this by saying that "it is due to undue arterial tension consequent on pregnancy."

Hirst⁶ says "albuminuria in the mother is the rule in multiple pregnancies."

In eighty-one autopsies of eclamptics Herzfeld found eighteen cases of compressed and dilated ureters. This may account for the albuminuria.

Edema of the vulva is not uncommon in prolonged labors. Hirst⁷ reports a case of edema of the vulva and beginning gangrene due to prolonged pressure in obstructed labor. It is a well known fact that edematous tissues lose their elasticity, give rise to tears and subsequent gangrene. Williams⁸ states that in twin pregnancies the patient may suffer from dyspnea, pressure symptoms and edema. He also holds that edema of the vulva and lower extremities often results from pressure excited by the enlarged uterus upon the veins returning from the legs. Ehrenfest⁹ believes that edema of the labia is due to a general pelvic congestion. Budberg¹⁰ has suggested that edema of the labia and perineum tends to prevent a laceration during labor.

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MEDICAL EXPERT TESTIMONY.*

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For thirty years and more medical expert testimony has been the subject of much discussion, severe criticism, and attempted reform through legislative enactment by the medical and legal associations of this country and by many other organizations and individuals, with the net result of the passage in Rhode Island in 1896 and in Michigan in 1905 of bills regulating, to a very limited extent, this subject.

The Rhode Island Act provides for the appointment of medical experts in both civil and criminal cases on the application of the parties only. The Michigan Act provides that the compensation of experts shall be fixed by the court and not by the parties; that the number shall be limited; that in homicide cases the court may appoint one or more experts to investigate the issues and testify at the trial at the expense of the county, and that the Act applies to all witnesses testifying to opinions, whether medical or otherwise. (See Note.)

In the case of *People versus Dickerson*, 164 Michigan, 148, the Supreme Court of this State declared Section 3, authorizing the court to appoint experts in homicide cases, unconstitutional. The remaining sections of the Act are unaffected by this decision. The court, in disposing of the matter, uses the following language. I quote it quite fully for the reason that it presents the argument generally advanced in opposition to changes in our present methods of procedure:

"The proper selecting and appointing witnesses who shall, after appointment, acquaint themselves with the matter in controversy, and testify concerning the same, is in no sense a judicial act, and, if exercised by the court in accordance with the mandate of Section 3, would entirely change the character of criminal procedure, and would seriously endanger, if not absolutely destroy, those safeguards which our Constitution has so carefully enacted for the protection of the accused. The most cursory examination of Section 3 will disclose its vice. The court is directed to appoint one or more suitable, disinterested persons to investigate and testify. This appointment is to be made without notice to either the prosecuting attorney or the accused. The reasons which impel the court to make the selection are not of record and can never be known. The names of the selected experts cannot be endorsed upon the indictment by the prosecuting attorney as required by law, for he himself is as ignorant of their identity as is the accused. The right of one accused of crime to know in advance the names of the witnesses who will testify against him and to examine into their character, means of knowledge, et cetera, in order that he may properly prepare his defense, is a right as ancient as our criminal jurisprudence. The court is commanded to make known to the jury the fact of the

*Read by invitation before the Detroit Society of Neurology and Psychiatry, November 9, 1911.

appointment, and that his appointees have been found by him to be suitable and disinterested. The section then provides that other experts may be sworn by either prosecution or defense. This is an idle provision, for in the face of the certificate of character, fitness, and ability given to the court experts by the court, experts summoned by either side would receive but scant consideration at the hands of the jury; their testimony would be swept aside in a breath. Juries are most anxious to ascertain the opinion of the court as to the guilt or innocence of the accused, and, ordinarily, more than willing to adopt that opinion as their own. Trial courts, therefore, in doubtful cases, have jealously guarded their own opinions in order that juries might determine controlling facts uninfluenced by the mental attitude of the judge.

"The expert witnesses provided for by this section testify under a sanction which gives to their testimony practically the same weight as if it were delivered by the court itself, and if that testimony, being against the accused, were either wilfully or ignorantly mistaken, its baneful results would be appalling. To give to the testimony of a witness or witnesses this extraordinary certificate of candor, ability, and truthfulness, while the other testimony in the case must be judged by the jury by ordinary standards, is to subvert the very foundations of justice. In *People versus Vanderhoof*, 71 Michigan, 158 (39 N. W., 28), this court said:

"The charge of the court virtually put the evidence of these doctors and professors upon a higher plane than the other testimony, which was manifestly wrong."

"In *People versus Seaman*, 107 Michigan, 348 (65 N. W., 203; 61 Am. St. Rep., 326), the following language is used:

"An expert witness is to be judged from the same standpoint as any other witness."

"In *People versus Holmes*, 111 Michigan, 364 (69 N. W., 501), we said:

"When the question of insanity is to be submitted to the jury, the testimony which is offered to support the claim should be treated with the same respect as that offered to establish any other fact."

"We do not overlook the fact that the statute here considered was designed to correct an evil long recognized as tending to bring the administration of the criminal law into disrepute, in cases where insanity is urged as a defense, but we are of the opinion that the true remedy for this evil rests in the development of a livelier sense of responsibility to the public for the proper and decent administration of justice on the part of both the legal and medical professions, rather than in revolutionary legislation. That both professions recognize and deplore the existence of the evil, there can be no doubt, and recent activities in both lend reason for hoping that the scandal which has often attended the introduction of expert testimony will, in the future, cease to be a reproach in the administration of criminal law."

The literature upon this subject is abundant. An analysis of it, however, discloses a remarkable uniformity of views expressed and remedies suggested for reform. They may be summarized from a recent article written by Doctor George W. Gay, of Boston, and published in the *Boston Medical and Surgical Journal* of December, 1910.

He says that medical experts are of two classes; the partisan and the nonpartisan; that the partisan expert is altogether too common in our courts, and is hired or bought for special purposes and testifies in behalf of his employer, regardless of the real merits of the case. He pleads for a more courteous treatment of the expert by counsel, and argues that they should be allowed to give their opinions in their own way and should be subjected to cross-examination solely for the purpose of elucidating and explaining those opinions. He thinks the judge, on account of his superior knowledge, ought to be allowed to charge the jury upon all expert evidence and enlighten them upon the character of the testimony. He urges that the court should select all experts and that they should be paid by the State. But a better plan, he thinks, would be for the court to refer all requisitions requiring expert testimony to a commission of alienists or experts, who should be required to conduct their examination according to the ordinary methods of consultation, and embody their conclusions in report to the court; that they should then be required to appear at the trial and be subject to examination and cross-examination as are ordinary witnesses. One effect of this method, he says, would be to prevent those unseemly wrangles which, at times, have been a disgrace to both professions.

That medical expert evidence generally has fallen into disrepute in late years, is unquestioned. The principal ground of complaint seems to be that the medical expert, while nominally a witness, is, in fact, a partisan or advocate, who takes sides in the case, and uses medical science merely as a means of supporting the side he represents.

I am convinced that this complaint is not altogether true; for I have known many upright, talented, and reliable experts who were in every way entitled to credit and respect, and whose honesty and accuracy of statement and thoroughness of preparation were manifest in every utterance. It is the occasional dishonest, unreliable and incompetent expert, and his manifest venality, that gives color of condemnation to the whole subject of medical expert testimony.

Most of the dissatisfaction, however, arises in two classes of cases, criminal trials involving the question of sanity and personal injury cases. In nearly all, if not all, other cases the expert testifies with little or no complaint from the interested parties, either as to the substance of his testimony or the method of producing it. The venality complained of does not, it seems to me, necessarily follow from the partnership of the witnesses or the fact that they differ in their opinions. In its last analysis, except in a comparatively few instances, the complaint

is really based on the idea that scientific questions should be decided by experts rather than by a jury; that the experts should be judges rather than witnesses.

This is a natural conclusion, but it is not in accord with our methods and theory of legal proof. Unless we are ready to discard trial by jury, the expert must remain a witness and nothing but a witness. The fact that experts differ in their opinion is not, in my judgment, a basis for criticism. There are a few universally accepted principles of science, and very many concerning which there is a wide divergence of view. There would be no progress were this not so. There is no magical formula which will prevent men erring in their judgments or differing in their opinions. The truth is more likely to be ascertained by the presentation and analysis of opposing views, and error is very likely to be exposed by the same process.

Whatever may be the cause of complaint, whether just or unjust, it is common to assume that the fault is in the law and that the remedy is in legislation. I am inclined to the opinion that the question is a moral rather than a legal one, and that it can, and must, ultimately, be met within the medical profession itself, by raising its ethical standards and maintaining them, rather than attempting to secure reforms by legislation.

The only ways in which legislation can, in any substantial manner, control the questions involved are: (1) By changing the method of selecting experts; and (2) by fixing their compensation.

(1) In every effort to reform the present methods by legislation brought to my notice the attempt has been made, in one form or another, to place the authority in, or the obligation upon, the courts to select experts. The difficulty encountered by such effort, it seems to me, has been, and is, in the confusion of two distinct methods of legal procedure, the common law method, as early adopted in this country and which still prevails, and the continental method, as applied in France, Germany, and other continental countries of Europe.

Under the common law method medical experts are and always have been selected by the parties themselves. The office of both court and jury is to hear and determine the cause upon the evidence presented by the parties. As pointed out in the Dickerson case, the production of witnesses or evidence is not the duty of the court. The trial judge may, under special circumstances, order a person to be called as a witness when it is shown that he has knowledge of particular and material facts. But this right is exceptional, rarely exercised, and nowhere clearly defined.

When experts were first called into cases, early in the history of the common law, they were treated as ordinary witnesses. This custom and practice has so long continued and is so firmly established that it can be changed only, if at all, by legislation. In this State the question of change in the manner indicated is foreclosed by the Dickerson case, which substantially holds that even legislation will be unavailing, on

the ground that it would take away a fundamental and constitutional right of a party to select his own witnesses.

In marked contrast with the common law method of trial is the continental method. There, all experts are appointed by the trial judge, usually from an official list of experts. Those appointed are obliged to serve, and are paid a reasonable sum for their services. If the parties agree upon the names of the official experts to be appointed, the judge must appoint them. If they do not agree the judge may appoint *ex-officio*. The judge decides, either upon application or of his own motion, whether there is occasion for expert evidence in the case or not. All this is consistent with the continental theory of judicial procedure and trial, which had its origin in the civil law, while our method is equally consistent with the common law method of practice.

Under the continental method the trial is more in the nature of an inquisition conducted by the court, the parties having very little to do with directing the proceedings. The judge leads the trial; the examination of witnesses is by or through him, and cross-examination is seldom resorted to. The law provides for the procedure of the experts and the form of their report, which is in writing, and its use as evidence. The fundamental point of the continental method is that the selection of expert witnesses is taken out of the hands of the parties by the State.

This system has many admirers in this country, particularly among the medical profession, and it no doubt appeals strongly to the lay mind as having many points of advantage over our own. It is said that it takes the expert out of the atmosphere of conflict which surrounds the parties and places him in a position favorable to a judicial attitude of mind. His exemption from cross-examination is believed to preserve his candor and increase the value of his testimony. On the other hand, from the point of principle, there is much that can be said in opposition to such a method. It is unnecessary to go into this branch of the subject further, for our own Supreme Court has characterized the system as unorthodox in no uncertain language. Under the common law the right to select all the witnesses for the trial must be left in the hands of the parties themselves. And this is now the rule in this State.

It was with a full realization of these antagonistic and apparently irreconcilable conditions that the joint committees of the State Bar and Medical Associations framed the Act of 1905. It can now be seen how Section 3, which was declared unconstitutional in the *Dickerson* case, was a compromise between the continental and the common law systems I have outlined.

By the provisions of Section 3 the right of the parties to select their own witnesses and the right of cross-examination of those called by the court was preserved. It was hoped that this compromise might save the section, but it did not.

I might say, in passing, that it was not the idea of the framers of this section so far as I know—at least it was not my own idea—that

it would be so construed as to give the court authority immediately on the arrest of a person for homicide to appoint experts to conduct an inquisition as to the mental status of the accused; but rather after the issues were framed and the trial begun the court might exercise the authority granted in the proper case.

(2) I believe that the method of fixing the compensation of medical expert witnesses is of more importance than their selection. Large fees, and especially contingent fees, must almost of necessity have more or less influence upon their testimony. They are likely to forget that they are witnesses and feel that they are the paid advocate of one side or the other of the cause.

There has never been any doubt in my mind but that this is a subject within the power of the legislature to regulate. Section 1 of the Act of 1905 contains a provision along these lines, and I do not believe its constitutionality can be successfully attacked. Experts must, as I have said, be placed by the law unmistakably in the class of witnesses; their compensation should be fixed at a reasonable sum; the amount so fixed should be taxable as a part of the costs in the case, and provision should be made for unusual or additional services rendered in preparation, which should be allowed by the court on proper showing made.

Of course there is no single remedy that will cure all evils. Want of proper standards of expertness and the consequent invitation to the charlatan to testify as an expert, the prolongation of trials, and the unfortunate tendency on the part of some courts to permit incompetent medical experts to testify to opinions which are but the speculative vagaries of ill-informed minds, are all matters well known, but very difficult to handle through legislation. Nor can the blame be attached to the trial judges, for in many States they have been shorn by legislative enactment of much of their common law powers in the trial of causes.

President Taft expressed the real situation in his Chicago speech in 1909 when he said:

"In this country there seems to have been, on the part of all State legislatures, a fear of the judge and not of the jury, and the power which he exercises in an English court has by legislation been reduced from time to time until now—and this is especially true in western States—he has hardly more power than a moderator in a religious assembly."

To restore to the courts their common law authority in the direction and conduct of trials would doubtless aid in the reforms now so ineffectually attempted by means of legislation.

Medical societies can aid in these reforms by emphasizing the moral issue involved upon both student and practitioner. They can establish rules of conduct to be observed when called upon to act as medical expert witnesses.

Sir James Stephen, in his "General History of Criminal Law," Volume I, page 576, makes this suggestion:

"If medical men laid down for themselves a positive rule that they would not give evidence unless before doing so they met in consultation the medical men to be called on the other side and exchanged their views fully, so that the medical witness on the one side might know what was to be said by the medical witness on the other, they would be able to give a full and impartial account of the cause that would not provoke cross-examination. For many years this course has been invariably pursued by all the most eminent physicians and surgeons in Leeds, and the result is that in trials at Leeds (where actions for injuries in railway accidents and the like are very common) the medical witnesses are hardly ever cross-examined at all, and it is by no means uncommon for them to be called on one side only. Such a practice, of course, implies a high standard of honor and professional knowledge on the part of medical witnesses; but this is a matter for medical men. If they steadily refuse to act as counsel and insist on knowing what is to be said on both sides before they testify, they need not fear cross-examination."

This was written in 1883.

Doctor Francis Wayland Anthony, in the *Boston Medical and Surgical Journal* of January 16, 1908, writes that at a meeting in Boston, by delegates from several of the district societies, it was voted:

"That this committee recommend to the various district societies of the State a plan by which physicians, when called to make examinations for the purpose of testifying in court, shall make that examination upon the basis of professional consultation. I have done this for several years, with the result that in a great majority of cases the medical testimony was absolutely in accord, and in many cases cross-examination was omitted either by the plaintiff or the defendant, since there was to be no variation."

Such a course would undoubtedly be resisted by both the parties and their attorneys in the beginning; but there is no legal impediment in the way of its accomplishment so far as I know, and ultimately it would lead to a restoration of confidence in the sincerity of the medical expert and a reduction to a minimum of the present divergent and antagonistic views and opinions so often expressed upon the witness stand.

In New York alone sixty per cent of its litigation consists of personal injury cases. The medical expert in such cases is indispensable, and his influence in large measure is controlling. How important, therefore, that the standard of medical expert testimony should be high, above suspicion, and dependable; and the medical profession will render itself and the State a great service by bringing about any reform that will secure these ends.

NOTE.—An act to regulate the employment of expert witnesses.
The People of the State of Michigan enact:

Section 1.—No expert witness shall be paid or receive as compensation in any given case, for his services as such, a sum in excess of the ordinary witness fees provided by law, unless the court before whom such witness is to appear or has appeared, awards a larger sum; and any such witness who shall directly or indirectly receive a larger amount than such award, and any person who shall pay such witness a larger sum than such award, shall be guilty of a misdemeanor, and on conviction thereof shall be punished by a fine not exceeding one thousand dollars, or by imprisonment in the county jail not to exceed one year, or both, in the discretion of the court, and may further be punished for contempt.

Section 2.—No more than three experts shall be allowed to testify on either side as to the same issue in any given case, except in criminal prosecutions for homicide: Provided, The court trying such case may in its discretion permit an additional number of witnesses to testify as experts.

Section 3.—In criminal cases for homicide where the issues involve expert knowledge or opinion, the court shall appoint one or more suitable and disinterested persons, not exceeding three, to investigate such issues and testify at the trial; and the compensation of such person or persons shall be fixed by the court and paid by the county where indictment was found, and the fact that such witness or witnesses have been so appointed shall be made known to the jury. This provision shall not preclude either prosecution or defense from using other expert witnesses at the trial.

Section 4.—This Act shall not be applicable to witnesses testifying to the established facts or deductions of science, nor to any other specific facts, but only to witnesses testifying to matters of opinion.

Approved June 7, 1905.

THE RELATION OF SURGEONS TO MALPRACTICE SUITS.

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THE profession of the surgeon, being the only human agency of saving life in so many cases, stands alone among the occupations of men. There is no service in which the public has so great an interest. I have sometimes thought that the government, either state or national

*An address delivered at the Annual Meeting of the New Hampshire Surgical Club, Portsmouth, New Hampshire, September 7, 1911.

or both, should employ and control all surgery for the public good. But while that may be extreme, it is certain that the state should enact all possible laws for the advancement of surgery, laws for the protection of those who give their lives to this public service. With your permission, I will take this opportunity to make public certain strong views which I entertain on one phase of your profession which is closely related to my own—a problem of public nature which the events of recent years are rapidly forcing upon our attention and demanding public action.

The principle which I have in mind is this, that the public good imperatively demands some check or limitation on the rapidly increasing malpractice suits against surgeons.

This right to sue a surgeon for damages is now absolutely unlimited. A lawyer who can raise ten cents to buy a blank writ in behalf of a worthless client with a fancied wrong, may make a declaration charging malpractice against the most reputable surgeon; may make his *ad damnum* one hundred thousand or one million dollars, as he pleases, and, without giving any bond or protection whatever, may arrest that surgeon who, without any hearing, but, as a matter of course, must go to jail until he can find bail sufficient to liberate himself. When this is done, and only this, such a sensation is made in the community and through the public press that the surgeon's reputation is ruined or smirched for life and his mental anguish thereat is untold. This is the condition of things tolerated today in this State with the full protection of the law. My position is, that it is absolutely indefensible from any standpoint whatsoever. The fact that the legal steps above suggested can so easily be taken, with such ruinous results, is a weapon of wrong against the surgeon by means of which unscrupulous patients may demand and receive money from surgeons at almost any time in order to suppress these initial proceedings, even when the surgeon knows that he is absolutely in the right. It is a weapon against the surgeon by means of which things bordering on blackmail may be accomplished. It is a weapon against surgery so vehement and disastrous in its results that I believe many students who might become able and skillful surgeons, are deterred from entering upon so precarious a profession.

The fear of such litigation does not render the surgeon more careful. There is no reputable surgeon whose desire for his patient's life and health, as well as his own reputation, is not a sufficient guaranty that he will approach his task with the very greatest care and skill there is in him. It is too serious a matter. He goes to the operating table with every ounce of nerve, skill, brain, and care summoned for the operation. He should not be disturbed at that critical moment by any other considerations. The fact that he may be sued, arrested, imprisoned, his property taken and all that, for what may happen the next moment should not be allowed to enter his mind to take away a particle of the nerve and skill which he needs for the occasion. We are all human. Surgeons have nerves as well as others, and I believe no surgeon is at his best during the moments of the great operations, if he is to be harassed in the slightest degree in his mind by the thought of these possible suits.

Again, marvelous advances in surgery have been made only

because surgeons have dared to be original; dared to try new things; dared to take great chances at critical moments. Shall we discourage the advancement of this science by making them adhere to the established methods so as to be able to justify in court by the testimony of other physicians as to the usual practice?

I believe the poor people of the land as a class are the ones who are being most adversely affected by this rapidly increasing kind of litigation against surgeons. Why? The reason is too obvious to be stated. With such litigation against surgeons possible, charity operations for the poor are becoming fewer and fewer, and I wonder that they are not almost wholly eliminated. For what surgeon would care to give his services to operate upon a poor patient when that patient may sue him for large damages for the results of his free work?

Again, it must be self-evident that the surgeon in order to take the chances of these harassing suits, must make his charge very large, and it is a popular impression that such charges at present are large. If so, this condition of the law, and not the surgeon himself, is responsible therefor.

Therefore, I conclude that laws which tend to discourage the advancement of this most vital science and which tend to keep out of the profession capable men—laws which deprive poor and suffering humanity of the charity work which they might otherwise receive, and render to the moderately poor prices beyond their reach, are laws contrary to the public good.

The multiplying of these suits against surgeons has driven the latter in order to protect their wives and children from the poor house to resort to insurance. But there is no kind of insurance which protects the most valuable asset of the surgeon, namely, his good reputation; and the insurance companies do not pay until the initial and damaging proceedings have been begun and the surgeon's name injured or ruined.

I believe that this kind of insurance actually multiplies the number of malpractice suits, because patients and attorneys will more readily enter into litigation against the surgeons thinking that an insurance company must pay the verdict. And I believe that it is easier to obtain verdicts against surgeons now that it has become generally known that they have insurance, because jurors are taken from among the people who have this knowledge, and having sympathy for the afflictions of the plaintiff and feeling that the insurance company can easily pay, the jury often pay little or no attention to deciding what should be the main question of "malpractice." Then, again, as I have before said, the damage is already done and the surgeon's reputation and practice have been injured long before a jury is impanelled or the insurance company can be called upon to pay. Moreover, with every conceivable kind of insurance available to the patient himself for any accidents or injuries or sickness or death, this kind of litigation is not really necessary for his protection.

I do not contend that this litigation can be entirely obliterated or the right to sue absolutely denied, but I do contend that some limitations and restraints upon the same, can and should be made, and that it is emphatically for the public good that it be done—and that right speedily.

TRANSACTIONS.

CLINICAL SOCIETY OF THE UNIVERSITY OF MICHIGAN.

STATED MEETING, NOVEMBER 1, 1911.

THE PRESIDENT, ALBION WALTER HEWLETT, M. D., IN THE CHAIR.

REPORTED BY REUBEN PETERSON, M. D., SECRETARY.

READING OF PAPERS.

*A REPORT OF A CASE OF TWIN PREGNANCY, WITH SEVERE
EDEMA OF THE VULVA AND LOWER EXTREMITIES
DUE TO PRESSURE.*

DOCTOR HOWARD H. CUMMINGS read a paper bearing this title.
(See page 406.)

DISCUSSION.

DOCTOR LESLIE H. S. DE WITT: The presence of albumin in the urine is much more frequent in multiple than in single pregnancies. Some even go so far as to say that albumin is always present in cases of multiple pregnancy. There are several factors entering into the etiology of albuminuria. First, it may be due to the overdistention caused by the presence of more than one child. Second, pressure upon the ureters at the brim of the pelvis, also pressure directly upon the kidneys. Third, it may result from renal insufficiency, that is, the inability of the kidneys to eliminate for two. The adherents of the placental theory insist that the increased area of placental attachment gives rise to a greater number of toxins absorbed by the blood and this acts as the causative factor. In proportion to the albuminuria, edema is found to be present.

Doctor Peterson, in his paper on vaginal Cesarean section for eclampsia, has compiled twenty-two hundred eighty-two cases of eclampsia. Of these, multiple pregnancy was found in five and eight-tenths per cent or one out of every nineteen cases, while one out of every eighty-nine normal cases develop it.

When this patient came to the hospital the question arose as to whether she was toxemic. It was thought not, because of the absence of the clinical symptoms of toxemia, particularly headache which is a cardinal symptom in eclampsia. The headache in this condition is so typical as to be classed as an eclamptic headache.

DOCTOR REUBEN PETERSON: The only death from eclampsia in the maternity ward during the past ten years occurred in a woman with twins. In this case the diagnosis of twin pregnancy had not been made prior to labor. After being in labor a short time she developed eclamptic symptoms which led to the rapid evacuation of the uterus. An hour after the delivery the patient went into convulsions and died in spite of all eliminative treatment. The autopsy showed both ureters dilated to the size of the thumb and typical eclamptic lesions in the kidneys, liver, and brain.

As has been mentioned, in my paper on vaginal Cesarean section I have shown from the five hundred and thirty cases studied, how much more frequent eclampsia is in multiple pregnancies.

In the case reported this evening it did not seem to me as if the woman was in a very serious condition when brought to the hospital. She was very edematous, especially about the vulva and lower extremities but symptoms of intoxication such as intense headache and blurred vision were lacking. In case she had had convulsions and it had become imperative to empty the uterus the nature of the operation would have had to be determined. With such enormous distention of the vulva vaginal Cesarean section would have been out of the question. In fact any operation from below would have been difficult. Under these circumstances abdominal Cesarean section would have had to be considered, in spite of the fact that this operation for eclampsia has been attended with a very high mortality. At present I am engaged in a research work on the subject of abdominal Cesarean section for eclampsia. While I am not prepared to make a report at the present time I think it will be found that if the moribund patients be eliminated the mortality from the operation will not be as high as has been supposed. One American operator has had thirty-three cases with only three deaths. One objection to the operation is the tendency of the uterine wound not to heal owing to the eclamptic condition of the patient. In the majority of cases the operation has been limited to cases of contracted pelvis where the woman could not be delivered by the subpubic route.

DOCTOR HOWARD H. CUMMINGS (closing the discussion): I meant to have stated that the picture gives a very poor idea of the condition of the vulva, but does give some idea of the edema of the legs which was very marked. One labium is almost of normal size. That is the one that had the tear at the time of labor. A couple of hours after the birth it was almost of normal size.

The surgical treatment, where operative means are necessary by way of the vagina, is by multiple incisions in the edematous vulva. This results in a return to the normal size, when it is possible to operate from below.

This patient felt perfectly well the next morning, in fact, as well as any patient after a normal confinement. The puerperium was uneventful in all respects.

CALCULOUS ANURIA.

DOCTOR DEAN LOREE read a paper on this subject, the following being an abstract thereof:

The striking characteristic of calculous anuria is the length of its tolerant period with a total absence of subjective symptoms, which causes a critical condition to go unheeded. The surgeon must not delay operation through hopeful but misleading signs. The spontaneous cures are from twenty per cent to twenty-eight per cent as against fifty-one per cent of operated cases.

Why uremia is delayed or what toxins produce it are not known. It is clinically apparent that the kidney does not produce urine when occluded, unless occlusion be intermittent. If excretion is inhibited, what part then, does secretion play in prolonging life?

Those who withstand the longest periods of anuria with tolerance have the fewest complications before the attack.

As to the condition of the kidney opposite the one last occluded, calculi are found more often than reflex inhibition, congenital absence or renal diseases foreign to calculus.

In diagnosis, the Roentgen ray is the most valued agent. The stiletted ureteral catheter and the Roentgen ray will not only locate the calculus, but give information as to the point of surgical attack. Much reliance is placed on pressure pain with muscle spasm. The proofs of hysteric anuria can be fairly easily established. The evidences of calculus causing anuria are also of a conclusive character.

The prognosis becomes graver the longer anuria exists. Coma further complicates the matter. The object of the treatment should be the removal of the cause. If there is unilateral calculus proceed to the performance of nephrolithotomy or ureterolithotomy. If uremia is manifest, nephrotomy is sufficient for kidney drainage, leaving the stone to be removed at a subsequent operation, if it does not pass. If both ureters are occluded perform bilateral nephrotomy.

DISCUSSION.

DOCTOR REUBEN PETERSON: I have very little to add to Doctor Loree's most excellent and exhaustive paper. However, I wish to place on record a case which must have been at one time one of calculous anuria. The patient gave a history of an attack of renal colic with suppression of the urine. Finally she passed a calculus accompanied by considerable blood. Several months ago she had an attack of pain in the right side and another attack a month ago. I opened the abdomen for the removal of an adherent dermoid completely filling the pelvis. Palpation along the course of the right ureter showed no calculus. Following up the palpation we were unable to find any traces of the right kidney. The gall-bladder was filled with two hundred fifty small calculi. These were removed and the patient is making a good recovery. This is the first time in the course of a number of thousand abdominal sections, I have found a kidney absent, although I have run across two cases of horseshoe kidney. The kidney on the left side did not feel larger than normal. In this case it would be very easy for calculous anuria to occur. Perhaps one of the most interesting points brought out by the essayist is the length of time some patients will have calculous anuria without uremic symptoms and yet ultimately recover.

DOCTOR DEAN LOREE (closing the discussion): Doctor Breakey asks whether any effort was made to catheterize the ureters after the passage of stones. This question is certainly very pertinent. I was desirous to again cystoscope the patient before he returned home, but

as he had three times submitted to such an investigation, besides undergoing two nephrotomies, he declined.

Calculous anuria is a very uncommon disease. Kummel, in a recent paper, reports but six cases. Doctor Braasch, in a personal interview, stated that to his knowledge there had never been a case in the Mayo clinic.

REPORTS OF CASES.

A CASE OF CONGENITAL DILATATION OF THE COLON.

DAVID M. COWIE, M. D.

Department of Medicine.

THE case I wish to present this evening is that of a little girl of eight years with congenital dilatation of the colon. The child has complained of but few symptoms, namely, constipation from early infancy with attacks of extreme distention of the abdomen, and at times characteristic air hunger with cyanosis. The child has had practically no normal bowel movements since birth. The abdomen may be said to be in a constant condition of marked distention but there are times when this is so great as to lead one to speak of it as an attack. It is at these times that she becomes cyanotic and gets relief by being carried into the open air. After the patient entered the hospital we did everything possible to reduce the distention so that the morning the picture was taken the abdomen was flat giving me the first opportunity for careful palpation. Air was then introduced by means of a rectal tube and bulb and the abdomen distended to the degree shown in the picture. During this distention the apex beat was displaced from the third to the second interspace. The distention produced no distress. When I first saw the patient, peristaltic waves the size of a large orange could be seen traveling from left to right over the epigastrium. At one time I thought a wave traveled in the reverse direction.

From the slides it will be seen that we are dealing with an enormously dilated colon which can be traced from the sigmoid around to the hepatic flexure and down into the ascending colon, the greatest dilatation being in the descending colon and sigmoid. There is what may be called a ballooning of the rectum and sigmoid, for whether this is empty or full of feces there is always a characteristic bulging of the abdomen just above and mostly to the left of the pubes. Aside from the enlarged colon palpation is negative.

It may be briefly stated that these cases of congenital dilatation of the colon fall into two classes. Those due to a congenital elongation of the descending colon which does not grow in proportion to the body so that in later childhood or adult life it is about the normal size, and those due to some congenital deformity in the rectum or sigmoid bringing about a certain degree of stenosis without marked obstruction of the bowel.

A word about the frequency of this affection. Up to 1896 only twelve cases had been recorded. Hirschsprung recorded his first cases in 1888. In 1889 Griffith, of Philadelphia, collected twenty-four cases

and since this time cases have been recorded with greater frequency so that at the present time there must be in the neighborhood of seventy or eighty cases if not more on record. This does not mean that the condition is necessarily so rare but rather that the disease has not been recognized. Many of these children die before reaching the second year. No autopsy having been performed the diagnosis of some other condition is doubtless given. In all cases of severe and prolonged constipation in infancy and childhood congenital dilatation of the colon should be borne in mind.

The question now arises what can be done for a patient like this. Treves has successfully removed the entire colon. His is the one case of congenital dilatation of the colon on record, I believe, which survived this operation. I should propose an enterostomy between the cecum and the upper portion of the rectum or lower portion of the sigmoid, the idea being to sidetrack the colon with the hope that the feces would pass directly into the rectum and not accumulate in the large bowel, thus overcoming the constant distention. Nevertheless there would still be an opportunity for fermentation to produce distention. However, the operation has been performed with reported success in chronic constipation in adults. The enterostomy having been done, a second operation for complete removal of the colon could be performed with less risk.

In presenting the case in the clinic the question was raised as to what effect an enterostomy at this point might have on pregnancy in later years. Doctor Peterson can answer this question for us. Probably it would have no effect.

The medical treatment consists in determining the character of the fermentation, subsequent careful regulation of the diet, and bowel irrigations intelligently given. Cathartics seem useless.

DISCUSSION.

DOCTOR CONRAD GEORG, JR.: I cannot speak regarding the surgery of the colon from personal experience. Connell, of Wisconsin, recently read a paper on this subject of dilatation of the colon. It cannot be told whether the good results of his operation will be lasting, but in about a dozen cases he has had favorable results. Of course, if the stricture is down in the rectum or rectal valves it should be relieved by dilatation of the stricture and valvotomy. In Connell's cases, in addition to Lane's kink, which is a kinking of the ileum just before it enters the colon, there was a membranous pericolicitis. The ascending colon tends to drop down into the pelvis, causing a condition of enteroptosis and he found also a condition of pericolicitis which resulted in the formation of a rather broad band of adhesions which were united to the retroperitoneum at the promontory of the sacrum below. This prevented the colon from moving out of the pelvis. He noticed in these patients, in some of whom the appendix had been removed for chronic appendicitis, that the patient after the operation was no better and still suffered from chronic constipation and other symptoms accompanied by pain in

the abdomen. In one case he made a careful survey of the colon and found that it was in an abnormal position down in the pelvis. This was due to a band of adhesions, a pericolicitis, also a kinking in the ileum. He twisted the band into a cord, then sutured the cord to the muscles in the abdominal wall, thus lifting the colon out of the pelvis and tending to hold it up to its normal position. Some of these patients have remained well for a couple of years, but whether the operation will be a permanent success is problematic.

DOCTOR REUBEN PETERSON: These cases of dilatation of the colon, whether congenital or acquired, are interesting. I, also, have watched the reports of Lane's operation with much interest. It seems surprising that the entire colon can be removed and no bad results follow. Doctor George H. Noble, of Atlanta, reported in 1909 before the American Gynecological Society some twenty-five or more patients where he had anastomosed the ileum with the sigmoid for constipation and mucous colitis. About seventy-five per cent of the patients were cured. So I see no objection to the same operation in this patient, as proposed by Doctor Cowie.

Pregnancy probably would have no injurious effect after such operations. After intestinal anastomoses and in the presence of many intestinal adhesions the intestines take care of themselves when pregnancy supervenes.

DOCTOR DEAN LOREE: There is an objection to the operation of short-circuiting the colon. It is a question how long the enterostomy will persist. Artificial openings of this character are generally permanent only so long as there is obstruction. A gastroenterostomy without pyloric obstruction is not a permanent affair, and when we come to view such operative fields, as we are at times permitted, at subsequent operations, we find the stomach and bowel walls healed separately. It is my opinion in this case the same condition would ensue unless there be obstruction distal to the opening. It might possibly persist for a sufficient time to cure the condition. I think the question of the operative condition interfering with subsequent pregnancy need not be considered.

DOCTOR ALBION WALTER HEWLETT: These marked cases of congenital dilatation of the colon are quite uncommon. I was under the impression that they were due to a lack of tone in the colon. The ideal operation would be an excision of the entire colon. This has been done in a few cases with good results. It is not an easy operation, and I have seen it terminate fatally. The entire colon may be removed without marked physiologic disturbances following. Some years ago Doctor Erlanger and I worked on dogs from which seventy per cent of the small intestines had been removed, and we were unable to find any marked disturbance of absorption unless considerable quantities of oil were given. On a carefully selected diet they lived quite as well as normal animals.

DOCTOR COWIE (closing the discussion): I did not intend to consider the subject of dilatation of the colon in adults, which is not uncommon,

but particularly that form in children known as congenital idiopathic dilatation of the colon. For this condition there may be a congenital defect of the rectum or the lower portion of the sigmoid as I have mentioned before. This point must be cleared up in the case I have presented. Rectal examination showed a rather indefinite projection as high up as I could reach with my finger, about three to three and one-half inches, which felt like a fold in the rectum. These folds are sometimes mistaken for "rectal valves." The child did not remain long enough for further examination under ether.

According to the reported cases it may be said that the patients seldom live beyond the second year and those who survive this age rarely live beyond the twentieth year without surgical interference.

TWO CASES OF EXOPHTHALMOS.

WALTER R. PARKER, M.D.

Department of Ophthalmology.

I shall present two cases of orbital growths, one a cyst, the other a tumor, probably a fibrosarcoma. Both patients presented themselves in the Ophthalmologic clinic during my absence and I am indebted to Doctor Slocum for the histories from which these abstracts are made.

Case I.—Male, aged thirty-six, American. Family history negative. Twenty years ago patient was shot with a revolver. The bullet entered the pinna on the posterior surface at its juncture with the head. The patient thinks the bullet did not lodge. Two months ago he noticed a throbbing sensation in the right eye. There was no pain, but there was occasional diplopia. Later there was pain, swelling, and loss of vision.

Present condition: Lids ecchymotic, conjunctiva injected and edematous, sclera slightly injected. Pupil reflexes normal, pupils equal, four millimeters. Iris slightly off color. No paralysis of the extraocular muscles. Marked exophthalmos, right eye displaced outward, downward and inward. Fundus examination: Media clear, disc swollen about two diopters, retinal vessels tortuous, retina edematous. A cystic tumor in the orbit at the external angle could be plainly felt.

A radiograph showed the patient to be mistaken in regard to the lodgment of the bullet. It was present, and had divided, one part having lodged near the ramus of the jaw, and the other near the inner insertion of the zygoma.

To determine the character of the contents of the cyst, Doctor Slocum aspirated it and sent a sample of material obtained to the Pathologic laboratory for examination. Report—mucoid material, no bacteria.

We had to deal with a cyst (possibly dermoid) or a retention cyst due to necrotic changes following injury to the orbital wall at the time of the accident.

Operation: A facial incision was made curving up over the external angle of the orbit. The cyst presented in the wound and was

easily opened and evacuated. I was unable to remove the entire wall but removed a piece for examination to see if it contained any skin elements so as to determine whether it was a dermoid or due to inflammation. A portion of the external orbital wall was exposed and necrotic. All the contents of the sac were carefully removed and the exposed bone curetted.

The piece of sac removed together with some of the contents of the cyst were sent to the Pathologic laboratory for examination.

Pathologic report.—Infiltrated mass of scar tissue. Fluid contained albumin, lime salts, which possibly resulted from bone necrosis.

Undoubtedly the piece of the bullet that is lodged below, passed



FIGURE I.—Orbital Cyst.

along the orbital wall, and the resulting injury has lead to a necrotic process, producing the cyst.

This photograph (Figure I) shows the appearance of the patient before the operation.

Case II.—Male, aged thirty-three, American. Family history negative. Two years ago the patient noticed a slight irritation in the right eye. Six months later he first noticed that the left eye was slightly more prominent than the right. This exophthalmos gradually increased until now the left eye protrudes seven millimeters more than the right. Vision has been but slightly disturbed. Tension, oculus dextra, twenty-one millimeters of mercury; oculus sinistra, twenty-seven millimeters.

The globe is displaced outward, forward, and downward. There is no diplopia. The exophthalmos was not reducible. There is no bruit nor evidence of acute inflammation. At the upper inner angle a somewhat movable tumor could be felt.

The first question to determine in this case is whether the growth originates in the orbit or extends from the sinuses. This is a very difficult question to answer, especially if we have to deal with a mucocele of the ethmoids or frontal sinus, as mucus does not have a shadow when transilluminated and the nasal examination may be negative. In this case there was a slight shadow of the frontal, but an exploratory operation revealed the sinuses to be normal. In this connection I wish to refer to the case of orbital tumor shown in this photograph (Figure II). An exploratory operation revealed not only the frontal but ethmoid and antrum on the side of the orbital growth, together with the frontal on the opposite side, all involved in a mucocele. The orbit is separated from the ethmoid by a very thin lamina, so any great pressure will sometimes fracture the bone and push it up, hence on palpation one feels the bony plate which gives a much harder feel than a cyst or mucocele would. A Killian operation was done by Doctor Plummer and recovery was uncomplicated.

Severe trouble from the sinuses having been eliminated in the case here reported, the tumor must be of orbital origin.

The location of an orbital tumor may be determined in a general way by the character of the exophthalmos. If the tumor be situated in the muscle cone, or at the apex of the orbit, the globe will be pushed directly forward. If situated in other locations, the globe will be displaced in an opposite direction to the location of the tumor.

Inflammatory and pulsating tumors can be easily eliminated in this case.

Sarcomata are the most common of the neoplasms met in the orbit. They may have their origin in the bone, periosteum, muscles, nerves, or glands. Fibromata and neuromata are occasionally found, while primary carcinomata are the rarest of orbital neoplasms and always have their origin in the lachrymal glands.

NOTE.—Since reporting the second case, I made an attempt to remove the tumor from above without sacrificing the eye. This, however, I was unable to do as all of the tissues were massed together and infiltrated. It was necessary to remove the eye together with all of the tissues of the orbit. The tumor is a carcinoma, the origin of which is probably in the lachrymal gland.

DISCUSSION.

DOCTOR GEORGE SLOCUM: There are a few features connected with these cases that are particularly interesting.

In the first case, the area about the orbit was carefully cleansed and the conjunctival culdesac freely irrigated with boric acid solution, making it as clean as possible before aspiration of the cyst. A culture was made of the fluid aspirated; after twenty-four hours there was

scarcely any perceptible growth but after forty-eight hours a thin light growth appeared which proved to be a pure culture of a Gram positive bacillus of the diphtheria group. We were unable to find any germs in the aspirated fluid; the specimen was submitted to Doctor Warthin who found no bacteria, and it was only after forty-eight hours that there were any signs of growth in our own culture media.

In regard to the second case, a mucocele commonly presents itself in the upper, inner part of the orbit. In this case the eye is protruded outward, forward, and a little downward indicating that the pressure came largely from the direction of the ethmoid cells. This, together with the other facts that the eye was not immovable and that the growth



FIGURE II.—Orbital Tumor.

was of at least two years duration and painless led to the belief that the ethmoids were involved, that is, that we probably had a case of mucocele similar to the earlier case mentioned by Doctor Parker, which, I think justified the exploratory operation undertaken by Doctor Plummer.

With regard to its being sarcoma, most sarcomata of the orbit of such long duration as in this case, so infiltrate the tissues as to make the eye-ball almost, if not quite, immovable. The facts that the eye in this case was quite movable before the exploratory operation and that there had been no pain add to the difficulties of making a positive diagnosis.

DOCTOR R. BISHOP CANFIELD: I remember the case very well, and I would like to remind Doctor Parker of one other case that was operated upon for carcinoma in this region. At the time this case showed no exophthalmos, but if it had gone further it would have produced it. I mention the case because I believe that we made use of an altogether new and original technic and because it gave us a satisfactory result. The case was one of carcinoma that had been operated upon several times and given up as inoperable. When it came to us the malignant growth involved the upper eyelid and structures deeper in the orbit. The man was a young and vigorous person with a long life before him and it seemed worth while to make another effort to save it. In order to do this it became necessary to sacrifice what might have been considered a useful eye if he had not had a good eye on the other side. We eviscerated the orbit and removed the periosteum entirely, removed the anterior wall of the frontal sinus and turned the skin of the lids as far as it was possible to save them into the orbit. At the same time we sewed a large skin graft to the freshened edges of the lids. The final result was an orbit thoroughly epidermized. The recovery was perfect. It was a remarkable case. He was afterwards seen working as a miner in the north country. This was two years ago, that is, four years after his operation and he was in perfect health. It was a remarkable case to us and one that we have duplicated since then. The only other report of a similar case was made at the last International Laryngological Congress at Berlin, but in this case instead of sewing in the skin graft they turned a large flap from the scalp thus securing a cure but a very unsightly cosmetic result.

DOCTOR PARKER (closing the discussion): Just one word to emphasize the cases mentioned by Doctor Canfield. I am glad that he has brought them up. The first was the most remarkable result of a malignant growth involving the orbit and sinuses that I have ever seen. The case made a perfect recovery as did the other one Doctor Canfield referred to. Such cases should be treated by a radical operation. You must keep operating until all diseased tissue is removed, if you expect the patient to receive any benefit. In our experience, results have justified radical interference in this kind of cases.

A CASE OF FACIAL KELOID DUE TO A BURN.

JAMES F. BREAKEY, M. D.

Department of Dermatology.

THE first patient presents a typical keloid involving a large part of both cheeks and part of the chin and neck (Figure I). These growths are of about one year's duration and are secondary to burns received by the patient when a celluloid eye-shade caught fire. The boy is about ten years old. He has fairly typical Hutchinson teeth and examination of his blood gives a positive Wassermann.

The fact that the Wassermann test is positive is a coincidence rather than a factor in producing the keloid and probably has no influ-

ence on the present condition of the patient. Keloids are particularly prone to occur upon the African and are almost invariably secondary to traumatisms. The extent or character of the trauma may be very small indeed. Pin pricks are occasionally followed by keloids and the extent of the growth is more or less problematic. They usually develop for a comparatively short time and then remain stationary. In rare instances they progress for years and again rarely undergo involution. With regard to the treatment, up to the discovery of the x -ray there was nothing known that would satisfactorily influence them. Excision



FIGURE I.—Facial Keloid Due to a Burn.

generally results in a secondary growth larger than the one removed. Keloids are more frequently found upon the chest or sternum, but they may of course occur anywhere where there has been trauma. Excision is usually worse than useless. Various injections have been used and in some instances electrolysis gives improvement, but the x -ray used persistently has resulted the most satisfactorily of any form of treatment. This should be carried out continuously for from six to nine months, one, two or three times a week with comparatively short duration of exposure, being careful not to produce an x -ray

dermatitis. In rare instances it is necessary to excite some reaction with the ray before getting any result. This boy has been under treatment now with the ray a little over two weeks and there is an appreciable change. Of course no form of treatment results in a complete cure. There is the patent scar remaining but the elevation may be practically eliminated.

DISCUSSION.

DOCTOR JOHN H. PETTIS: Owing to their great tendency to recurrence after removal, the surgical aspect of these growths is not very encouraging. However, in the case of small keloids resulting from a lacerated wound or any wound with a considerable loss of tissue, it is sometimes possible, by means of a plastic operation, to substitute a linear scar from the previous more extensive one; and since there seems to be some relation between the size of the scar and the resulting keloid, such a procedure often results in an improvement.

It is claimed by some that the results of *x*-ray treatment are more satisfactory in the early stages of the formation of these growths. If this is true, operation as suggested, followed by the use of the *x*-ray would seem to be the best course to pursue in selected cases. Of course in this particular case the growth is so extensive that any plastic operation is quite out of the question.

DOCTOR R. BISHOP CANFIELD: I have seen a small keloid very satisfactorily removed by excision followed by approximation of the skin edges by gauze and collodion without the introduction of sutures,

DOCTOR DEAN LOREE: A few years ago I had the surgical temerity to remove a keloid. It was situated on the upper and outer portion of the arm and measured three and one-half by four inches. The patient was a young lady about twenty-four years of age, whose vocation was that of a professional violinist, and as it interfered with the necessary movements of her bow, she was determined to have it removed although she was fully aware of its liability to return. The arm was quite fleshy and after excision there was no trouble in approximating the skin. I employed relaxation sutures of silkwormgut, and very carefully approximated the skin edges with horsehair. The stitches were left for twelve days, at which time there seemed a very beautiful healing by first intention, but a few days later I noticed a little extra-epithelial growth in the lower angle. In a remarkably short period of time this extended the whole length of the wound and of course there was a return of the keloid with some addition. Perhaps if the *x*-ray treatment had been employed in conjunction with the operation there might have been a better result.

DOCTOR BREAKEY (closing the discussion): Removal suggested by Doctor Pettis is a bold procedure. It is followed by recurrence usually greater than the growth removed. I should have mentioned that we tried in another case of keloid, some time ago, to freeze with carbon dioxid, but did not carry out the treatment sufficiently long to make satisfactory reports either way. Of course, if one attempts the surgi-

cal removal of a small keloid, coaptation should be without sutures, for practically every puncture of the skin with the needle gives recurrence quite as well as the main incision. So if one has the temerity to attempt surgical removal of such cases, he should certainly warn the patient beforehand of the probability of an unsatisfactory result.

ORIGINAL ABSTRACTS.

MEDICINE.

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MOTOR REFLEXES OF THE STOMACH.

VON TABOR (*Verhandlungen des Kongresses für innere Medizin*, 1911, XXVIII, 378) states that a delay in emptying the stomach may be due either to increased contraction of the pylorus or to a lack of gastric motility. It has long been known that acid and oil delay the expulsion of food from the stomach. By means of x-ray studies, however, the author has shown that the mechanism is not the same in these two cases. Acid holds back the food by increasing the pyloric reflex, even though the peristaltic movements are increased. Oil in quantities of one-half to one ounce abolish peristalsis completely and delays emptying by this means. The former would seem to be indicated when the food passes too rapidly into the intestines and needs a more prolonged digestion in the stomach; the latter in conditions of peristaltic unrest that disturb the patient, as well as in ulcer where as complete rest as possible is desired. After giving oil the stomach may be emptied mechanically by having the patient lie on his right side.

A. W. H.

THE BLOOD PICTURE IN HODGKIN'S DISEASE.

AFTER a careful study of the blood in eleven cases of Hodgkin's disease Bunting (*Johns Hopkins Hospital Bulletin*, 1911, XXII, 369) concludes that the blood picture is characteristic, is indicative of what is transpiring in the glands, and may be, if carefully weighed, a help in diagnosis. The most characteristic features are an increase in the number of blood platelets and an increase in the transitional forms. Among the former are many large platelet forms, practically pseudopodia of the megalokaryocytes. In terminal stages the platelets may be reduced owing to exhaustion of cells which give rise to them. The percentage of transitionals varied from 6.4 to 17.8 being lowest in those with leukocytosis and highest in those with leucopenia. L. W.

TUBERCULIN TESTS.

BROWN (*American Journal of the Medical Science*, 1911, CXLII, 469) discusses the specificity, danger and accuracy of the tuberculin tests. If we exclude for the time being leprosy, tuberculin is a specific test of tuberculous infection but not of clinical tuberculosis. The danger from the use of the test is slight but in unsuitable cases very real and possibly severe. The conjunctival test should never be given when there is any previous history of eye disease on account of the danger to the eye. The cutaneous tests are practically without danger. Subcutaneous tests with reactions are unpleasant, and in some cases are possibly followed by increased symptoms over long periods of time. General reactions have no definite connection with the appearance of tubercle bacilli in the sputum. Increase of physical signs appear in about one-third of those who show general reactions and in about one-half of these the symptoms were also increased. In practice, exposure to infection and characteristic symptoms, such as hemoptysis, pleurisy with effusion, dry pleurisy on both sides, and localized persistent signs at one apex, are diagnostic data of far more importance in clinical tuberculosis than any information derived from tuberculin tests. A positive reaction when only doubtful signs or symptoms of tuberculosis are present is of uncertain value unless the signs or symptoms are differently increased during the reaction. In the face of positive symptoms or signs, a negative reaction is of little value. The subcutaneous test if accompanied by a reaction at the site of the lesion is the most reliable of all tests, but it does not differentiate clearly clinical tuberculosis which requires treatment from nonclinical tuberculosis which requires only a God-fearing life.

A. W. H.

GYNECOLOGY.

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PHLEBITIS AND THROMBOPHLEBITIS DURING THE
PUERPERIUM AND FOLLOWING OPERATIONS.

SCHAUTA reports the course of lectures which he gave early this spring in the *Wiener medicinische Wochenschrift*, Numbers X, XI, XVI, and XVIII for 1911. The sixth lecture is devoted to phlebitis. The angeology of the lower extremities and pelvis is first reviewed and attention drawn to the fact that the right common iliac artery presses upon the left common iliac vein (especially when the intraabdominal pressure is raised) and thereby diminishes the venous blood flow on the left side. It is because of this arrangement of the vessels that phlebitis more commonly develops on the left side.

The infecting organism comes either from the placental site, directly into the interior of the veins or it affects primarily the vein wall.

Through injury to the endothelial lining, the blood clots at this point and a thrombus results, which, if suppuration takes place, forms the beginning of an abscess. Pyemic metastases result from a breaking up of the infected thrombus and are accompanied by chills.

It is difficult to state the indications for operative treatment in individual cases. So far as tying off the vein is concerned the difficulty is this: In the very acute cases it cannot be done early enough to keep the infection from spreading and in the less acute cases there are lacking diagnostic points of differentiation between the ultimately grave cases (in which alone operative interference is to be considered) and those which will spontaneously recover. Technically three avenues are open for the tying off of the veins—vaginal, extraperitoneal, and transperitoneal. The operation is difficult and very dangerous.

The removal of the uterus in the presence of such a severe infection is associated with a mortality of seventy-five per cent. In such cases Schauta formerly did a supravaginal amputation with extraperitoneal fixation of the cervical stump.

Venous thrombosis, the same as phlebitis, according to the author, is caused by a germ infection, but the germs are those of lessened virulence; furthermore, an epithelial defect must precede the infection.

The thrombus can become organized, or it can break up and produce embolism.

The diagnosis of the formation of a thrombus is not difficult. The corresponding veins become cord-like, there is peripheral edema, and a slight rise of temperature announces the onset. Pulse rises, step by step, may or may not be present.

Getting the patient up early is not a prophylactic against the formation of thrombi. A rigid asepsis, however, is.

In Schauta's clinic, during the past ten years, there were forty-seven cases of thrombus, twenty-two after operative and twenty-five after normal deliveries.

Phlebitis and thrombosis are the sequelæ of infection and there is no essential difference between the two, except in regard to the virulence of the infection.

B. R. S.

OBSTETRICS.

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DIAGNOSIS AND TREATMENT OF CONTRACTED Pelves.

KERR (*Surgery, Gynecology and Obstetrics*, Volume XIII, Number I) says that the methods of estimating pelvic capacity are defective and that by no means at our disposal can a measurement exact to within five-tenths of a centimeter be arrived at. The second difficulty in such cases is the

variability in regard to the size and consistency of the child's head. Accurate measurements cannot be obtained. Fortunately, however, these difficulties are not of great importance in any particular case. The relation of the fetal head in regard to the maternal pelvis is what concerns us. To determine this relation he employs bimanual palpation, pressing the head into the pelvis and at the same time feeling through the vagina how it engages. With sufficient practice one can soon become proficient in estimating almost the exact degree of traction necessary for the head to pass the brim. There are, however, two objections to this method of procedure; it requires an anesthetic, and it is not applicable to breach presentation. However, the valuable information obtained and the possibility of version more than overbalance these objections. In summary he says concerning diagnosis, that (1) a careful measurement of the pelvis, by hand and by pelvimeter should be made; (2) an estimate of the size of the child's head should be attempted both by palpation and by cephalometer; (3) the relative size of the head and pelvis should be estimated and this should be the basis of the treatment; (4) whenever possible this examination should be made in the thirty-sixth week of pregnancy and again at the beginning of labor, if the deformity is of medium degree.

Treatment.—In the major (conjugate vera below seven and five-tenths centimeters) and minor (conjugate vera over nine and three-tenths centimeters) the size of the pelvis alone determines the treatment, for in the latter, spontaneous delivery always occurs, while in the former, Cesarean section and craniotomy are practically the only alternatives. With medium degrees of deformity, several methods of treatment are to be considered (conjugate vera seven and five-tenths to nine and three-tenths centimeters). In regard to spontaneous delivery, he reports twenty-nine cases in which the conjugate vera was nine and three-tenths; sixteen cases in which it was eight and seven-tenths and eight cases in which it was eight and one-tenth centimeters. In the first two series there was no fetal mortality. In the last, one child was born dead and one died two days after delivery. He has twice seen a child delivered spontaneously with a conjugate vera of seven and five-tenths centimeters. He believes that it cannot always be predicted whether or not spontaneous delivery will occur, and in any event one can always fall back on forceps. In considering forceps, he reports one hundred thirty cases, where the conjugate vera measured from eight and seven-tenths to seven and five-tenths centimeters, which were delivered by forceps. Where the conjugate vera was seven and five-tenths centimeters the mortality was forty-six per cent; conjugate vera of eight centimeters, twenty-three per cent, and of eight and seven-tenths centimeters, sixteen per cent. The average mortality for forceps cases was twenty-seven per cent. By carefully choosing his cases, however, he has been able to reduce the mortality to four per cent. While opposed to the use of forceps in contracted pelves, he does not condemn their employment entirely. In moderate or very slight contraction, if forceps are not used, pubiotomy is the only resource. In regard to craniotomy as an operative procedure, in no case seen early in labor, did this procedure have to be adopted. It has been

proved that pubiotomy is a dangerous procedure when the conjugate vera is below seven and eight-tenths centimeters, while many do not attempt it with the conjugate vera much below eight centimeters. Doctor Kerr is of the opinion that we have now reached the point where the number of pubiotomies in the practice of an obstetric surgeon is in inverse ratio to his diagnostic skill and judgment. Pubiotomy sometimes is necessary where it cannot be avoided, but it should be reserved for such cases as have been indicated and only so reserved will the results be uniformly satisfactory.

As to the induction of premature labor. The following conditions are laid down for the induction of premature labor:

(1) The conjugate vera must not be less than eight and one-tenth centimeters.

(2) Pregnancy must have advanced at least to thirty-six weeks.

(3) The patient must be a second para at least; the first labor is a "test labor."

(4) In the thirty-sixth week the patient is examined under anesthesia and the relative size of the head determined. Labor should be induced if the head can be made to bite the pelvic brim. If the head is too large, Cesarean section at term is the only operation.

In the consideration of Cesarean section he quotes Routh's table of all cases performed in Great Britain, showing that in clean cases, that is, patients not in labor, or in labor with the membranes intact, the mortality is two and nine-tenths per cent, while in suspect cases with membranes ruptured or in which frequent examinations or attempts at delivery have been made, the mortality reaches seventeen and three-tenths per cent. In the latter event the mortality reaches thirty-four per cent. With such mortality the ordinary Cesarean section seems hardly justifiable and the following substitutes have been suggested:

(1) Craniotomy has, as a maternal mortality, eight per cent. In cases of a dead or dying child, it is the operation of choice except in the very extreme degrees of pelvic deformity.

(2) Panhysterectomy gives, he thinks the best results in suspect cases. The most suitable cases, however, are women who have nearly reached the menopause. Cesarean section, with or without Sellheim's uterine fistula, gives no better result than is obtained by the classic operation. W. F. S.

VAGINAL CESAREAN SECTION FOR ECLAMPSIA.

PETERSON (*The American Journal of Obstetrics and Diseases of Women and Children*, Volume LXIV, Number I) makes a careful study of five hundred and thirty cases of eclampsia treated by vaginal Cesarean section. The data concerning the cases were obtained from eighty-one American and foreign obstetric surgeons, and only cases in which convulsions actually occurred and in which the data were complete were included in the list.

The maternal mortality following vaginal Cesarean section was twenty-three and four-tenths per cent. As the list includes many cases

which were reported simply because the patients died, and the reported cases represent the work of over one hundred operators, the result as given cannot be said to overestimate the value of the operation. Furthermore, the fact that the operation was often performed because of the desperate condition of the patient would also make the percentage of mortality unduly high. The important point apparently is not whether the uterus is emptied by operation or spontaneously. More important is the time elapsing between the onset of convulsions and the emptying of the uterus. In a series of six hundred fifteen reported cases treated by prompt delivery, the mortality was fifteen and nine-tenths per cent, while in a series of three hundred ninety cases treated expectantly a mortality of twenty-eight and nine-tenths per cent was obtained. Likewise in another series of one hundred fifty cases treated by immediate delivery there was a mortality of four per cent, while in a series of one hundred forty-seven cases treated conservatively the mortality was thirty-one and two-tenths per cent.

The emptying of the uterus seems to have a favorable effect on the convulsions. In a series of four hundred fifty-three cases there was a total cessation of convulsions in sixty-two and six-tenths per cent after operative delivery. It seems to make very little difference as regards the cessation of the convulsions whether the delivery ends spontaneously or is terminated by operative means. The fact that convulsions cease after delivery does not mean that the patient will recover; even under these conditions about eighteen per cent die. However, where the convulsions cease the patient stands a much better chance of recovery since the mortality is ten per cent higher where the convulsions continue after operation. After ten convulsions the mortality increases rapidly as the number of convulsions increase. The average number of convulsions in five hundred thirty cases of eclampsia was eight. The average is higher where the patients die than where they live. Multiple pregnancies are much more common among eclamptics. Twins are four and one-half and triplets ten and one-half times more frequent in this complication.

Peterson finds that the question of the fetal mortality in eclampsia has not been given much consideration. Among fetal mortalities he does not count cases where the fetus weighed less than two thousand grains up to the eighth month, nor cases where the child was known to be dead at the time of operation. A child dying within an hour after delivery was included among the deaths. The fetal mortality, after vaginal Cesarean section, was twenty-one and two-tenths per cent as compared with twenty-five and one-tenth per cent after spontaneous and with thirty per cent after other operative delivery. The fetal mortality increased as the number of convulsions before delivery increased.

Eclampsia occurs three and one-half times as often in primiparæ as in multiparæ but both the material and fetal mortality is higher with multiparæ. The mortality probably also increases with the age of the patient. The attacks are most likely to occur during the last month of pregnancy, but the mortality is higher in cases where the convulsions occur at six or seven months. The mortality is also higher in patients who

develop a deep coma. Employment of other operative means prior to the vaginal Cesarean section results in a higher mortality, due to the delay in the emptying of the uterus.

The size of the os is the condition that should decide for or against the performing of a vaginal Cesarean section. An intact cervix or undilated os in a patient requiring rapid delivery is an indication for the operation whether the cervix be rigid or soft. The single anterior incision was sufficient in most cases, and the fetal mortality was considerably lower where this technic was used.

The difficulties encountered during the operation are not numerous. Injury to the bladder is probably the most to be feared. Proper technic no doubt will overcome these difficulties. After the vaginal incisions are made, delivery for the mother can be accomplished a little more safely with forceps than by version. The fetal mortality, however, is lower after delivery by version.

Hemorrhage does not seem to be a complication to be feared after this operation. The amount of blood lost in most cases is very slight, and alarming hemorrhage is very rare.

The writer draws the following general conclusions:

(1) The maternal and fetal mortalities are lower, the earlier the uterus is emptied after the first convulsion in antepartum eclampsia.

(2) Hence no time should be lost in employing the slower methods, but as soon as the diagnosis of eclampsia is established, the uterus should be emptied by the operation which will give the best results for mother and child.

(3) Vaginal Cesarean section meets these requirements because it is based upon sound surgical principles, is quickly performed, while its technic can be acquired by any one familiar with the rudiments of obstetric surgery.

(4) Early diagnosis and early operation in antepartum eclampsia will lead to a marked reduction in both the maternal and fetal mortalities.

G. K.

CESAREAN SECTION AND ITS ALTERNATIVES.

ROUTH (*The Journal of Obstetrics and Gynecology of the British Empire*, Volume XIX, Number II) discusses the indications of Cesarean section and its alternatives in women with contracted pelves, who have been long in labor and exposed to septic infection. He classifies the cases as "clean" and "suspect." Among "clean" cases are included patients not in labor and those in labor but with membranes intact. "Suspect" cases include patients in labor with membranes ruptured and cases where there have been frequent examinations or attempts at delivery. Cesarean section on "clean" cases had a death rate of two and nine-tenths per cent, while among the "suspect" cases the mortality is seventeen and three-tenths per cent.

Various operations have been devised and recommended to offset this

high mortality in "suspect" and septic cases. Porro's operation reduced the maternal mortality. To avoid craniotomy, symphysiotomy was revived in 1866, but the postoperative morbidity prevented its general adoption. Pubiotomy was later recommended as a substitute for symphysiotomy. To avoid the dangers that accompanied these operations in septic cases, the operation known as "extraperitoneal" Cesarean section was devised. Sellheim has more recently advocated the forming of a uteroabdominal fistula in cases of undoubted infection.

All authorities are agreed that the present methods of dealing with "suspect" cases and "infected" cases are unsatisfactory. As perforation of the living child is becoming to be considered unjustifiable among most obstetricians, it emphasizes the necessity of another method of procedure.

The measure of the danger depends on the kind of infection. Streptococci and staphylococci, as a rule, produce the most virulent infections, since these organisms multiply in the blood. But even putrefactive saprophytic organisms are serious since they will interfere with the union of incisions.

A published communication from Professor Bumm states that if the membranes have ruptured he makes a bacteriologic examination with the microscope before performing a suprapubic section. In case bacteria are found the fetal head is perforated. Although a great deal of investigation has been done on the bacterial content of the vagina during pregnancy and on the bacteriology of the uterus during the puerperium, but little is known concerning the bacteriology of the vagina during labor and of the amniotic cavity after rupture of the membranes.

The great difficulty is to distinguish the "clean" from the "suspect" cases. It is suggested that films can be procured from uterine swabbings and a bacteriologic diagnosis made. Leatham has examined and reported upon swabbings, and later verified his findings by culture. The writer thinks that in this way one can get prompt reports, sufficiently reliable in many cases to justify adopting a particular type of operation according to the variety of microorganism present.

For septic cases an alternative prophylactic measure adopted by Maxwell consists of passing a pliable tube into the uterus and freely irrigating the uterus and amniotic cavity with warm salt solution; "whether it is possible to irrigate the amniotic cavity so thoroughly that all putrefactive organisms can be washed away or rendered harmless is only a question that can be settled by experience."

Routh considers that the rapid bacteriologic examination of films prepared from the liquor amnii or cervix will enable the treatment to be put on a more scientific basis. "If so, classical Cesarean section would be performed with perfect security if the fluid is sterile; Cesarean section, preceded by Maxwell's intraamniotic irrigation and by eventration of the uterus, might be considered safe if nonpathogenic germs were found; and a radical hysterectomy would be considered desirable if pathogenic microorganisms were discovered."

G. K.

EDITORIAL COMMENT.

MEDICAL EXPERT TESTIMONY.

THE paper by Judge Perkins in this issue should be carefully read by all medical men, especially by those who at times give expert testimony. The Michigan law of 1905, for the framing and enactment of which Judge Perkins was largely responsible, was warmly applauded by the better medical experts of the whole country. It did seem that the regulation secured by this law would remove from medical expert testimony the opprobrium which had so long and justly been attached to it. The writer testified in several cases under that law, and each time he did so he felt how much he, as an individual, and the profession as a whole, owed to Judge Perkins and his committee. But the Supreme Court of the State has declared Section 3 of this law unconstitutional, and since all the virtue of the enactment lay in this section, the whole is practically null and void.

The writer has no claim to legal knowledge, and consequently will not express an opinion on this decision. It now seems that there is no hope of eradicating the evils so frequently attached to expert testimony by legal enactment. This is regrettable, but it seems that it must be accepted as a fact. Judge Perkins thinks the betterment of this condition must await the moral development of the medical profession. Certainly much depends upon this. No reputable medical man would serve as an expert for a lawyer who would propose a contingent fee, but there are many lawyers who do not hesitate to offer such terms. After all it is the lawyer who selects the physician to testify in his case. Shady lawyers hunt for venal witnesses and will not be satisfied with any other.

It is a double misfortune that there are tricky lawyers and venal physicians, the latter ready to serve the former. When a dishonest medical witness goes on the stand, in nine cases out of ten, he has been selected by the lawyer because he is corrupt. Which is the more contemptible, the man who sells himself or the man who buys him? Besides, the lawyer is often in the case because he is corrupt. He has been employed, not to secure justice but to secure a verdict for his client, and both lawyer and witness are paid by the former's client and are in the same boat.

It is granted that each party to a cause has a right to a fair trial, and when trial lawyers no longer resort to corrupt practices to secure verdicts for their clients, the venal medical expert will disgrace his profession no longer. In a case some time ago an employee suffered a fracture of the cervical vertebræ, and died some hours later. The lawyer in the suit for damages said to the physician: "When you go on the stand you must testify to the great suffering this man underwent from the moment of the accident to that of his death." The doctor replied that the injury resulted instantaneously in unconsciousness and

there was no pain. The lawyer answered: "For every hour of pain you testify that this man suffered your fee will be increased fifty dollars." This doctor refused to testify that the man suffered pain, and the lawyer started out to find a physician who would testify as he wished, and, sad to relate, such a one could be found. The lawyer's behavior in this case did not apparently meet with disapproval, for soon after this he was elevated to the Bench. Indeed, some one was wicked enough to insinuate that sharp practices like this made the Bar anxious that he should become Judge, so that his legal associates would not meet him as an antagonist at the Bar.

In the evolution of the moral man, which will first disappear, the shyster lawyer or his tool, the corrupt medical expert? The writer shall not attempt to "qualify" to answer this question.

Then, there is the lawyer who approaches the scientific expert on cross-examination, with an attitude which is brutal, with a tone which is condemnatory and antagonistic, and with words which are insulting. Many trial judges permit this attempt on the part of the lawyer to defeat all effort to get at the truth of the matter. Either the witness must defend himself or his counsel must come to his rescue. In either case the witness is made to appear as a partisan, and often he leaves the stand with a vow that he will never permit himself to be placed in such a position again, and the wise man will keep this vow.

In regard to the remuneration of medical experts, the writer can say that he knows nothing about fees paid insanity experts, but he does know something about fees paid toxicologists, and he knows of no instance in which exorbitant sums have been given for work of this kind. Work in this specialty requires long and expensive training; it brings great responsibility, and fortunately it comes to any one man only occasionally.

Forensic medicine has not been developed among English speaking peoples. Our country has produced no great man in this line of work, and with the exception of Taylor, the same is true of England, while France can be credited with Orfila, Tardieu, Stas, and Bouchard. The list of great names in forensic medicine among German speaking peoples is too long to give in full, and includes such as Casper, Hofmann, Dragendorf, Otto, Kobert, Strussmann and Simon.

There are two great repositories of forensic medicine, the French *Annales d'Hygiene Publique et de Médecine Légale*, and the German *Vierteljahresschrift für gerichtliche Medizin*. The former was begun in 1828 and the latter some twenty years later. Both have been continued unbrokenly to the present time, and together they contain a complete record of the development of forensic medicine. There is not, so far as the writer knows, an Institute of Forensic Medicine in any English speaking country, while one is found in every large city of continental Europe. In the Institute in Hamburg, when a dead body is brought from the waters of the Elbe, scientific men are able to tell whether the body went into the water dead or alive, and within a

fraction of an hour how long it has been in the water. In continental Europe scientific methods for the investigation of suspected crime are prescribed by law. In this country there are no formulated, legal regulations for procedure, and scientific and exact methods are in a large proportion of cases wholly wanting and frequently contravened.

In many instances of suspected crime the proceedings are so imperfect that the case is hopelessly tangled and a correct solution rendered impossible. Frequently the public prosecutor is a young man without experience. He employs, or the coroner employs, a physician, equally inexperienced, to make the obduction, and between them the whole matter is so confused that "a reasonable doubt" can be easily injected into the case.

Each State University should establish a laboratory of forensic medicine, in which the scientific investigation of suspected crime should be carried out for the State, and a protocol of such an investigation should be furnished the trial Judge, and both parties to the case. Whether the parties who have made these investigations should sit with the Judge in an advisory capacity or appear as State witnesses, must be left to our legal friends to determine. Certainly it is a duty which must be performed largely by the medical profession to develop the science of forensic medicine in this country. The task is not a hopeless one, and when accomplished, the effort to secure justice in our criminal courts will not be so difficult. VICTOR C. VAUGHAN.

RABIES—HYDROPHOBIA.

DESPITE the fact that this is an age of preventive medicine, little progress has been made in the eradication of rabies. On the contrary this disease has become more common during the last ten years than ever before. This prevalence is due to two factors: first, the canine population increases in proportion to the number of human inhabitants; secondly, neglect on the part of those public officers whose duty it is to enforce the law on muzzling. Every state in the union has enacted such legislation as a means of limiting the spread of rabies once the disease has been introduced into a locality. Should the public officials fail to enforce the law it is through either ignorance of the statute or negligence.

As is well known this disease is transmitted for the most part—in about ninety per cent of the cases—by the bites of rabid dogs. In the latent state the virus is not carried by the animal for more than three months. Before this subject was carefully investigated a longer period of incubation—from six months to a year—was taken for granted. Yet no authenticated case in which the dog has become rabid after having been inoculated more than three months previous has been recorded. Furthermore careful laboratory experiments support the shorter incubation period. If a law should be enacted compelling the muzzling of all canines in the United States for six months—a doubling of the longest incubation period—and establishing a permanent

quarantine of three months on those brought from foreign countries, rabies would become practically extinct. The only possible source of reinfection would be from the fox, wolf or skunk. Moreover, in localities where the disease may become epidemic among wild animals, as was the case among foxes in the State of Washington in 1910, a rigid enforcement of the law on muzzling can prevent the spread of the disease through more than a single generation.

Such a Federal law is out of the question practically at this time. Much can be done, however, to control rabies locally. Preferably, all dogs bitten by a rabid animal should be dispatched. If this is not done, they should be subjected to isolation or quarantine—and be under the observation of an expert—for six weeks. All other dogs within a radius of five miles should be securely muzzled for at least six weeks. This last precaution is necessary inasmuch as in exceptional cases a rabid dog may run as great a distance as forty miles. Germany affords a conspicuous example of the local control of rabies, for that country, like England, by means of a law on muzzling and a quarantine on imported dogs has eradicated the disease.

Inadequate measures in dealing with this danger are without justification. In an epidemic where, as has been previously stated, the incubation period is about three weeks and is rarely over six, a law providing for the muzzling of dogs for two weeks is illogical. On the other hand, an epidemic can, under usual conditions, be completely eradicated by an enforcement of the law on muzzling for at least six weeks after the appearance of the last case of active rabies.

Muzzling ordinances, for certain months or seasons of the year, when based on a supposed seasonal prevalence are, in the face of facts, unwarranted. On the contrary, the most serious epidemic in Michigan occurred during the winter of 1905-1906. During January, 1906, there were under treatment at the University of Michigan Pasteur Institute thirty-five patients. Eighty per cent of these persons were bitten by rabid animals, a fact proved by the microscopic and biologic tests. In contrast to this cold weather record the so-called "dog days" of July and August, 1909, recorded only five cases treated at the Pasteur Institute.

As a protective measure the law on muzzling is insufficient in itself. In addition ownerless stray dogs should be disposed of. They should be impounded by an official dog-catcher, or by the police, and dispatched in a humane manner. Dogs of value, properly cared for by their owners, should be provided with muzzles constructed of metal which would prevent biting and which, if humanely constructed, should fit the individual animal. A license fee should be imposed on all dog owners. The license tag worn by the dog should bear a serial number corresponding to the entry in the official register. In this register should be recorded the name and the address of the owner and a description of the dog. The license fee should be sufficiently large to discourage the keeping of worthless dogs.

Statutes relative to the keeping of dogs are not "class legislation"

as many owners of dogs are inclined to consider them. The enforcement of such laws does not interfere with the dog owner's personal rights; yet this argument is often advanced by those who do not realize that in this measure they have a self-protection. The dog owning public are protecting, not only their neighbor, but themselves when they support the laws which control this preventable disease. Such ordinances, like many others affecting the public health, are based simply on scientific facts. Those who maintain that it is not humane to muzzle a dog fail to recognize that the harness on a work horse may at times be much more galling than a well fitting muzzle on a dog.

JAMES G. CUMMING.

MEDICAL NEWS.

SECOND COUNCILOR DISTRICT MEDICAL SOCIETY.

THE annual meeting of the Second Ohio Councilor District Medical Society was held at Dayton, Ohio, October 25, 1911. The reading of formal papers was dispensed with in favor of clinics at the two leading hospitals. These clinics were given during the forenoon by Doctor Alfred Crofton, of Chicago; Doctor A. Walter Hewlett, of the University of Michigan; Doctor Edward Martin, of the University of Pennsylvania, and Doctor Reuben Peterson, of the University of Michigan. In the afternoon Doctor H. Russell Gaylord, of Buffalo, gave an address upon cancer in fishes. The meeting closed with a banquet in the evening.

INFANT MORTALITY REPORTED AT INTERNATIONAL CONGRESS.

AT the International Congress for the protection of infants, held in Berlin, September 11, 1911, Nathan Strauss, the delegate from the United States, reported upon the infant mortality in this country for the year 1909. There were 1,324,660 deaths and of this number 280,000 occurred among children under one year of age, and of these deaths, 113,000 were due to intestinal disorders caused by improper feeding, infectious diseases, and disease germs carried in the milk. The campaign for the present year has as its object the saving of 125,000 children. This is to be accomplished by a "National Crusade" systematized protection of babies, required Pasteurization of milk in large cities, and municipal milk depots.

THE ATTITUDE OF CERTAIN ANTIVIVISECTION PAPERS.

IN the October number of *The Saint Paul Medical Journal*, the editor explains the attitude of certain antivivisection publications, such as the *New York Herald* and *Life*. Several years ago, the medical profession of New York succeeded in getting the United States post-office authorities to refuse mailing privileges to the *New York Herald*

unless it eliminated quack advertisements and especially its advertisements of abortionists. This, naturally, lead to the bitterness of the *Herald* against legitimate medicine. *Life's* attitude toward the medical profession is not surprising to those who know the editor. He is pictured as a man who is probably incapable of being made to understand either the aims or the accomplishments of modern medicine, and who has been notorious in his support of all kinds of medical superstition and folly.

RECENT PUBLICATIONS.

REVIEWS.

PUERPERAL INFECTION.*

THIS is a book of almost four hundred pages and the subject is thoroughly and systematically dealt with. The writer is a man prominent in English obstetric circles and a well recognized authority along these lines.

A few short chapters deal with the history, classification, frequency, mortality, et cetera, of puerperal sepsis. The writer shows that the earlier English obstetricians had more to do with establishing the infective nature of the malady than they are ordinarily given credit for.

The bacteriology of the genital tract during pregnancy is given full consideration. The writer explains the variations as found by different observers by the fact that no uniform method of obtaining the vaginal culture is practiced and partly also to the different culture media used. He thinks that with proper methods it can be shown that about twenty per cent of pregnant patients harbor the streptococcus in the vagina.

In considering the etiology of puerperal infection considerable attention is given to predisposing causes. It is interesting to note that the writer emphasizes the importance of premature rupture of the membranes as an etiologic factor in the production. Most of the recent works neglect to mention this.

The pathologic anatomy is gone into in detail. All the varieties of pathologic lesions are described, the rarer ones as well as the common ones being discussed.

The symptoms of the disease are written in an interesting manner, and cannot be described more completely than they are in this chapter. Every variation is discussed and the symptoms of every known type of sepsis are described. The chapter is very interesting to read, and is well worth a careful perusal.

The discussion on the treatment of puerperal sepsis fills a little over one hundred pages. The writer is rather skeptical as to any advantage derived from the intrauterine douche, and he considers its use is attended

with considerable risk. An interesting and detailed discussion is given as to the value of the uterine curet in sepsis. Because of the great variation of opinion concerning the usefulness of this instrument it is considered in detail, and incidentally one finds here recorded the views of many prominent obstetricians. After considering all evidence the writer concludes that the curet is a dangerous instrument to use, and should be reserved for cases in which the retained products cannot effectually be removed by the finger.

The volume as a whole is a valuable contribution to obstetric literature. No other work considers the subject so fully. As a book of reference it has no equal in the English language. The volume represents a large amount of work, and the profession is indebted to the writer for the careful compilation of all the information. One can heartily recommend the work to all medical men. It will hold a prominent place in obstetric libraries for years to come.

G. K.

*By Arnold Lea, M. D., B. S., B. Sc., F. R. C. S., Lecturer in Obstetrics and Gynecology in the University, Manchester; Surgeon to the Northern Hospital for Women; Assistant Surgeon to Saint Mary's Hospital, Manchester; University Scholar and Gold Medalist in Obstetric Medicine, London: Henry Frowde, Oxford University Press, 1910.

CASE HISTORIES IN NEUROLOGY.*

SINCE the teaching of medicine by illustrative cases has become so popular, it was only a question of time when books should be published with the same object in view. There are differences of opinion as to whether such a system of teaching is a good one or not. The volume under discussion is one of a series of books of case histories, published by the same company and covering, so far, medicine, pediatrics, surgery, and neurology. The case histories given are very much condensed and not all the diagnostic aids are used. For instance, there is no mention of the findings in the cerebrospinal fluid or of the Wassermann reaction in such cases as tabes dorsalis. Very few of the cases have autopsy findings to complete them and no stress is laid upon differential diagnosis. A short paragraph is given to the prognosis in each case, usually not more than four lines, and but little more space is given to treatment. With respect to the latter the author is very pessimistic. As a rule the measures advised are for the relief of symptoms only, and no mention is made of such treatment as the x-ray in spinal gliosis, et cetera, which, while not always curative, have given good results in some cases. This is unfortunate because it may lead to the neglect of that most important duty of the physician to use every possible means to cure his patient. The reader of this book will find an interesting collection of case histories from which he can derive much valuable instruction in a very assimilable form.

*A selection of histories setting forth the diagnosis, treatment, and post-mortem findings in nervous disease. By E. W. Taylor, A. M., M. D. Pages, 300. W. M. Leonard, Boston, 1911.

THE PRINCIPLES AND PRACTICE OF MODERN OTOLOGY.*

THIS is a new book on the ear especially valuable to students and general practitioners, to whom it is dedicated. The anatomy of the temporal bone is clearly outlined in the first chapter and is made doubly clear by most excellent illustrations and cuts. A concise treatise on the bacteriology of the ear emphasizes the importance of a bacteriologic examination in all aural discharges. For the student and beginner considerable space is devoted to the method of examination of patients. The functional tests are those accepted by the Eighth Otological Congress at Buda Pesth in 1909. Many examples are given and the hearing tests worked out quite clearly.

Surprisingly, there is very little mention of the vestibular tests which are now so important in the diagnosis and prognosis of internal ear trouble. The chapter on suppuration of the middle ear and the chapters on intracranial complications of ear disease are the best that the reviewer has read on these subjects. "The Principles of Modern Otology," with its three hundred fourteen original illustrations, is a valuable addition to any practitioner's library. C. T. U.

*By John F. Barnhill, M. D., Professor of Otology, Laryngology, and Rhinology in the Indiana University School of Medicine; and Ernest de W. Wales, B. S., M. D., Clinical Professor of Otology, Laryngology and Rhinology in the Indiana University School of Medicine. Second edition revised. Octavo of 598 pages, with 305 original illustrations, many in colors. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, \$5.50; half morocco, \$7.00 net.

DISEASES OF THE SKIN.*

To those acquainted with previous editions of this book, it is but necessary to say that the same high standard has been maintained which has characterized the preceding editions. The revision has been such as to eliminate the obsolete, while presenting such new matter as to bring the book distinctly up to date. The article on pellagra, owing to the recent comparatively widespread appearance of the disease, has been rewritten in full. The various forms of parasitic dermatitis have also received particular attention, some having been introduced for the first time.

The treatment of dermatologic conditions receives especial and minute care, while new forms of therapy, such as freezing, are presented.

The illustrations are good and liberal in number, some twenty-five new prints appearing in this issue.

The book is well indexed, aiding materially in its usefulness to the busy man.

The publishers have coöperated with the author in presenting a most attractive and valuable volume. J. F. B.

*By Henry W. Stelwagon, M. D., Ph. D., Professor of Dermatology in the Jefferson Medical College, Philadelphia. Sixth edition, revised. Handsome octavo of 1195 pages with two hundred and eighty-nine text illustrations and thirty-four full-page colored and half-tone plates. Cloth, \$6.00 net; half morocco, \$7.50 net. W. B. Saunders Company

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